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BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SATURDAY OCTOBER 10 1942

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BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, LONDON, W.C.

No. 4266, WEEKLY, PRICE 1/6

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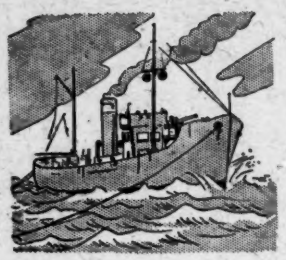

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 10 1942

TUBERCULOSIS IN LONDON IN WARTIME

BY

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In order to assess the effect of war conditions upon the incidence of tuberculosis in London, a review of the notification records was undertaken. The results of such an analysis in respect of an urban area in which conditions immediately before the outbreak of hostilities were stable have helped to throw some light on the problem of controlling tuberculosis, and are recorded here in the hope that they will be of use to other workers in this field.

Pulmonary Tuberculosis

The general trend of pulmonary tuberculosis in London is indicated by Table I, which shows the numbers of formal primary notifications and the numbers of deaths since 1913, together with the corresponding rates.

TABLE I.—*Primary Notifications (a) of and Deaths from Pulmonary Tuberculosis in the Administrative County of London*

Year	Formal Primary Notifications		Deaths	
	No.	Annual Rate per 1,000 Living	No.	Annual Rate per 1,000 Living
1913	(b) 19,218	4·25	5,863	1·30
1914	(b) 16,467	3·64	6,331	1·40
1915	(b) 14,712	3·26	6,715	1·49
1916	(b) 13,547	3·01	6,364	1·41
1917	(b) 14,870	3·31	6,768	1·51
1918	(b) 15,670	3·50	6,920	1·55
1919	(b) 12,356	2·76	5,197	1·16
1920	9,202	2·06	4,675	1·04
1921–5	38,807	1·71	22,980	1·01
1926–30	34,353	1·53	20,247	0·90
1931–5	29,569	1·38	17,075	0·79
1936	5,176	1·25	2,849	0·69
1937	5,455	1·33	2,888	0·71
1938	5,200	1·28	2,590	0·64
1939	4,691	1·24	2,650 (d)	0·70
1940	4,326	1·32 (c)	2,687 (d)	0·87
1941	4,577	1·78 (c)	2,552 (d)	1·10

(a) Excluding posthumous cases. (b) Not checked for duplicates. (c) Based on the civilian population only—i.e., civil notifications per 1,000 civilians. (d) Excluding non-civilians from Sept. 3, 1939.

It will be seen that the decline in incidence, which had been continuous since the war of 1914–18, was arrested at the beginning of the present war. Although it is not clearly shown by the table, the increase in mortality actually preceded the increase in the rate of occurrence of new cases. The rise in the notification rate was not appreciable until the latter part of 1940; the notification rate for the first half of 1940 was not substantially above the level of the same period in 1938. The impact of war was reflected first in the earlier deaths of those in whom tuberculosis had already developed. It was not until later that the strain of war began to produce a rise in newly diagnosed infections.

The analysis of new cases which was made for the years 1938–41 embraced not only formal primary notifications but also posthumous notifications. The distribution of these new cases by age and the estimated rates per 1,000 living are shown in Table II.

TABLE II.—*New Cases of Pulmonary Tuberculosis in London (A.C.), 1938-41*

Age Group	1938		1939		1940 (a)		1941 (a)		Increase in Rate for 1941 compared with 1938 %
	No.	Rate per 1,000	No.	Rate per 1,000	No.	Rate per 1,000	No.	Rate per 1,000	
0–4	105	0·42	76	0·40	60	0·53	104	1·64	290
5–14	228	0·42	161	0·39	103	0·55	198	1·74	314
15–24	1,484		1,353		1,130		1,150		
25–64	3,262		2,917		2,592		2,631		
65+	224	1·52	236	1·43	202	1·42	250	1·89	24
Not stated	2		24		18		24		
Total	5,305	1·31	4,767	1·26	4,105	1·33	4,357	1·87	43

(a) Excluding non-civilians.

It should be stressed that the validity of the rates shown in Table II depends upon the accuracy of population estimates on which they are based, the details of which cannot be adequately set out here owing to restrictions on space, but there is no doubt that the increase in the incidence of respiratory tuberculosis between 1938 and 1941, especially among children, is greater than that which could be attributed to errors in these estimates. Possible changes in the character of the population are dealt with in the discussion at the end of this article.

For comparative purposes the age distribution of deaths during the same period is shown in Table III.

TABLE III.—*Deaths from Pulmonary Tuberculosis in London (A.C.), 1938-41 (see note d, Table I)*

Age Group	1938		1939		1940		1941		Increase in Rate for 1941 compared with 1938 %
	No.	Rate per 1,000	No.	Rate per 1,000	No.	Rate per 1,000	No.	Rate per 1,000	
0–4	30	0·12	15	0·08	22	0·19	41	0·65	442
5–14	25	0·05	16	0·04	24	0·13	25	0·22	340
15–24	459		447		454		432		
25–64	1,863	0·77	1,922	0·83	1,965	0·95	1,827	1·16	51
65+	213		250		222		227		
Total	2,590	0·64	2,650	0·70	2,687	0·87	2,552	1·10	72

The sex distribution of new cases of pulmonary tuberculosis, 1938–41, is shown in Table IV.

For the purpose of Table IV non-civilians have been included in order that the sex proportions in the total populations to which the new cases are related can be regarded as comparatively stable. If non-civilians were excluded account would have to be taken of the different effect on the male and female civil populations of the calling up of Service personnel. It should be borne in mind, however, that the very fact that recruitment during the period under review has affected males

TABLE IV.—*New Cases of Pulmonary Tuberculosis in London (A.C.), 1938-41 (including Non-Civilians)*

Year	0–14			15–24			25–64			65+			Age Group Total (a)		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
1938	173	160	1·08	661	823	0·80	2,133	1,129	1·89	152	72	2·11	3,121	2,184	1·43
1939	111	126	0·88	654	699	0·94	1,913	1,004	1·91	170	66	2·58	2,868	1,899	1·51
1940	70	93	0·75	573	669	0·86	1,835	898	2·04	152	50	3·04	2,638	1,720	1·53
1941	164	138	1·19	621	722	0·86	2,001	880	2·27	188	64	2·94	2,987	1,815	1·65

(a) Including cases in which the age is not known.

more than females implies that the search for new cases has been more intense among males than among females; this tends to produce a fictitious increase in the male-to-female ratio of new cases of respiratory tuberculosis.

When these considerations are taken into account it does not appear possible to draw from Table IV any sound conclusions as to the effect of the war upon the relative incidence of pulmonary tuberculosis among men and women respectively in the important 15–24 age group. At older ages it does appear clear that males have been more affected than females (as in the case of non-pulmonary tuberculosis, see Table VIII). With regard to ages under 15, the irregularity in the sex ratios is not greater than that which has been experienced in past years and which might be expected having regard to the small numbers involved.

In the absence of precise information as to the sex components of the population of London it is not possible to carry the sex incidence analysis any further.

Non-pulmonary Tuberculosis

With regard to non-pulmonary tuberculosis, the background is given by the following figures, which tell the same story as does Table I for pulmonary tuberculosis.

TABLE V.—*Primary Notifications (a) of and Deaths from Non-pulmonary Tuberculosis in the Administrative County of London*

Year	Formal Primary Notifications		Deaths	
	No.	Annual Rate per 1,000 Living	No.	Annual Rate per 1,000 Living
1913	(b) 6,436	1·42	1,611	0·36
1914	(b) 3,862	0·85	1,666	0·37
1915	(b) 3,949	0·88	1,841	0·41
1916	(b) 4,084	0·91	1,641	0·36
1917	(b) 3,864	0·86	1,715	0·38
1918	(b) 3,517	0·79	1,526	0·34
1919	(b) 3,231	0·72	1,127	0·25
1920	2,461	0·55	1,070	0·24
1921–5	10,881	0·48	4,383	0·19
1926–30	8,971	0·40	3,080	0·14
1931–5	6,322	0·29	2,354	0·11
1936	1,056	0·26	363	0·09
1937	1,014	0·25	351	0·09
1938	982	0·24	347	0·09
1939	805	0·21	302 (d)	0·08
1940	653	0·20 (c)	318 (d)	0·10
1941	675	0·27 (c)	343 (d)	0·15

(a) Excluding posthumous cases. (b) Not checked for duplicates. (c) Based on the civil population only—i.e., civil notifications per 1,000 civilians. (d) Excluding non-civilians from Sept. 3, 1939.

The age distribution of the new cases which have occurred since the beginning of the war is shown in Table VI, from which it is clear that the comparatively small rise in the notification rate for the population as a whole conceals very large increases in the rates for the younger age groups. These increases are much in excess of any variations attributable to margins of error in the estimation of basic populations.

TABLE VI.—*New Cases of Non-pulmonary Tuberculosis in London (A.C.), 1938-41*

Age Group	1938		1939		1940 (a)		1941 (a)		Increase in Rate for 1941 compared with 1938 %
	No.	Rate per 1,000	No.	Rate per 1,000	No.	Rate per 1,000	No.	Rate per 1,000	
0–2	87	0·55	71	0·58	52	0·76	84	2·21	302
3–4	55	0·61	41	0·59	44	0·98	45	1·77	190
5–14	253	0·47	200	0·48	146	0·78	148	1·30	177
15–24	272		217		162		172		
25–64	346		302		249		211		
65+	40	0·20	26	0·17	24	0·16	40	0·20	—
Not known	—		2		4		4		
Total	1,053	0·26	859	0·23	681	0·22	704	0·30	15

(a) Excluding non-civilians.

The death rates (per 1,000) from non-pulmonary tuberculosis in the same four years among children under 15 years of age were: 0.19, 0.17, 0.35, and 0.87 respectively—a progression which is in substantial agreement with the trend of new cases.

The distribution of new cases according to the site of the tuberculous lesion is shown in Table VII for both children and adults. The variations in the rates for the different sites are in the case of adults relatively small when normal yearly fluctuations are taken into account, except possibly in the case of meningitis. In respect of children, however, the changes in the rates are substantial. When all bones and joints are combined, the percentage increases in the rates for each site over the period 1938-41 are: all bones and joints, 184; abdomen, 141; peripheral glands, 215; meninges, 250; other sites, 269. Having regard to chance fluctuations, the difference between these percentages does not appear to be statistically significant, except in the case of tuberculosis of the abdomen, in which the increase seems to be significantly lower than for other sites.

As an indication that 1938 is a satisfactory base year for the purpose of Table VII, the average site distribution of deaths from non-pulmonary tuberculosis during the immediate pre-war years is given below.

Percentage Distribution of Deaths from Non-pulmonary Tuberculosis in London (A.C.), 1931-8

Year	Bones and Joints	Intestines and Peritoneum	Central Nervous System	Other	Total
1931–8	15	10	41	34	100
1938	12	9	42	37	100

TABLE VII.—*New Cases (a) of Non-pulmonary Tuberculosis in London (A.C.), 1938-41: Distribution according to Site. Rates per 1,000 Living are shown in Parenthesis against the Numbers of Cases*

Age Group	Year	Site of Tuberculous Lesion								
		Spine	Hip	Knee	Other Bones and Joints	Abdomen	Peripheral Glands	Meninges	Other Sites (b)	Total
1. Under 15 years of age	1938	23 (0·029)	28 (0·035)	19 (0·024)	29 (0·037)	43 (0·054)	123 (0·156)	89 (0·113)	41 (0·052)	395 (0·501)
	1939	26 (0·043)	22 (0·036)	20 (0·033)	27 (0·044)	23 (0·038)	113 (0·186)	55 (0·091)	26 (0·043)	312 (0·514)
	1940	12 (0·040)	23 (0·077)	9 (0·030)	19 (0·064)	11 (0·037)	91 (0·304)	62 (0·207)	15 (0·050)	242 (0·809)
	1941	11 (0·062)	19 (0·107)	11 (0·062)	22 (0·124)	23 (0·130)	87 (0·491)	70 (0·396)	34 (0·192)	277 (1·564)
Increase in rate 1938–41 (%)		114	206	158	235	141	215	250	269	212
2. Over 15 years of age	1938	91 (0·028)	28 (0·009)	27 (0·008)	44 (0·013)	84 (0·026)	141 (0·043)	45 (0·014)	198 (0·060)	658 (0·201)
	1939	63 (0·020)	34 (0·011)	22 (0·007)	56 (0·017)	52 (0·016)	136 (0·043)	40 (0·013)	144 (0·045)	547 (0·172)
	(c) 1940	50 (0·018)	35 (0·013)	21 (0·008)	45 (0·016)	37 (0·013)	88 (0·032)	39 (0·014)	124 (0·044)	439 (0·158)
	(c) 1941	44 (0·020)	23 (0·011)	14 (0·007)	46 (0·021)	63 (0·029)	85 (0·040)	40 (0·019)	112 (0·052)	427 (0·199)
Increase in rate 1938–41 (%)		−29	22	−13	62	12	−7	36	−13	−1

(a) Primary notifications, including posthumous cases. (b) Includes miliary and genito-urinary. (c) Excluding non-civilians.

TABLE VIII.—*New Cases of Non-pulmonary Tuberculosis in London (A.C.), 1938-41 (including Non-civilians)*

Year	0–14			15–24			25–64			65+			Age Group Total (a)		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
1938	223	172	1·30	144	128	1·13	154	192	0·80	12	28	0·43	533	520	1·03
1939	165	147	1·12	107	110	0·97	142	160	0·89	14	12	1·17	428	431	0·99
1940	117	125	0·94	80	94	0·85	142	120	1·18	10	14	0·71	353	353	1·00
1941	141	136	1·04	87	111	0·78	116	113	1·03	14	26	0·54	360	388	0·93

(a) Including cases in which the age is not known.

The sex distribution of new cases is shown in Table VIII, in which non-civilians have been included for reasons that have already been stated. The trend of the sex ratios indicates that at ages below 25, and particularly in the 15–24 age group, females have been more affected than males by the increased incidence. At the older ages it appears that males have been more affected than females.

Discussion

The experience of London, judged by the foregoing statistics, has been less favourable than in the country as a whole. Brief, and in some cases necessarily approximate, figures for England and Wales are given in Table IX.

TABLE IX.—*Tuberculosis Notification and Mortality Rates per 1,000 in England and Wales*

Year	Formal Notifications per 1,000		Deaths per 1,000 (b)	
	Pulmonary	Non-pulmonary	Pulmonary	Non-pulmonary
1938	0·92	0·31	0·53	0·10
1939	0·84	0·27	0·54	0·10
1940	0·87 (a)	0·25 (a)	0·59	0·11
1941	0·95 (a)	0·28 (a)	0·60	0·13
Increase 1938–41 (%)	3	−10	13	30

(a) Approximately, based on mid-1939 total population. (b) Excluding non-civilian deaths after Sept. 3, 1939.

Possible causes of this divergence are easier to suggest than to measure. Evacuation has probably had a selective effect upon the population. Some children who were ailing may have been kept back by their parents, and those who subsequent to evacuation showed signs of deterioration in health would probably have returned very soon. Among children actually attending school it has to be admitted that there is little evidence to support this suggestion in the clinical results of routine medical examinations carried out by school medical officers; the increased incidence of tuberculosis, particularly of the non-pulmonary form, was, however, greater in children of pre-school age, and many of the new cases among older children would not have attended school for some time prior to notification and would have missed routine examination. A probable effect of evacuation has been to increase the proportion of tuberculous persons in the population remaining. It would be expected that as they were ill they did not desire to leave home, and for the same reason (in many cases, also, their economic status would be low) it would be more difficult for them to find homes in reception areas. Inquiries made of representative boroughs reveal that at Dec. 31, 1940, the following proportions of persons on the Dispensary Register were actually living within their respective boroughs: Finsbury, 94.5%; Islington, approximately 90%; Stepney, about 75%; Greenwich, 92%; Paddington, 73%. The balance are those who had evacuated themselves temporarily. There is reason to believe that these proportions are higher than that which the total population at that date bore to the pre-war population.

The statistics must also reflect to some extent the progressive recruitment of fit persons to the Forces. This selection also has the effect of increasing the proportion "unfit" in the residual population. On the other hand, recruiting boards have discovered some cases of active tuberculosis which otherwise would not have been diagnosed until the disease became more advanced.

Account must be taken of the aerial bombardment of 1940–1, with its concomitant physical and psychological strain and temporary overcrowding. It would be interesting to compare the experience of London with that of other much-bombed towns, but the necessary statistics are not available to us.

Part of the increases in the numbers of notifications of and deaths from tuberculosis can be attributed to reduced resistance to the disease and increased numbers of new cases diagnosed among Londoners who are patients in mental hospitals. The increase in the rate of occurrence of new cases among mental patients between 1938 and 1941 amounted to 0.12 per 1,000 of the total population of the County of London, and therefore, out of the rise of 43% in incidence, 9% is attributable to increased notifications in respect of mental patients. The increase, as such, has, however, been exaggerated by the fact that during 1941 more extensive measures of diagnosis were instituted in the mental hospitals and that therefore some of the notifications in 1941 related to patients who had been tuberculous for some time. With regard to mortality there is evidence that the proportion of all deaths of mental patients which are associated with active tubercle appears to have risen. An investigation is being made to ascertain the extent of increased incidence of tuberculosis in mental hospitals.

Finally there is the important factor of increased employment. Since Dunkirk there has been no respite from the heavy demands of war industry. Hours of work have been long. Travelling conditions have often been bad. Moreover, in wartime many less healthy persons obtain employment who would not in peacetime successfully compete in the labour market. Many have taken up heavier types of employment; this, in the case of infected persons, might make all the difference between the quiescence and development of the disease. Generally, in considering the balance between input and output of energy of the human body it is possible that the prominence given to measures for improving nutrition has distracted attention from the output side of the equation.

The statistics of non-pulmonary tuberculosis throw light on the type of infection and on the efficacy of the sterilization or pasteurization of milk as a means of reducing the risk of infection. Most of the milk consumed in the Metropolis is pasteurized, and therefore the fact that abdominal infections have not increased in proportion to infections at other sites is of special significance. The disproportionate rise in non-abdominal infections indicates that while pasteurization has held back the spread of bovine infections the principal infecting source is human. In this respect the experience of Glasgow (*British Medical Journal*, 1941, **2**, 436) is similar.

The experience of London differs from that of Glasgow in two important respects: (1) The increase in the incidence of tuberculosis is greater in respect of children than in respect of adults; and (2) new cases of pulmonary tuberculosis increased more in adults than new cases of non-pulmonary disease. This fact, coupled with the evidence of site distribution for non-pulmonary forms of disease in children, suggests that contact and droplet infection has been an important feature in London. It is difficult to assess the relative importance of decreased resistance to new or old-standing infections.

Summary

The effect of the conditions of war upon the trend of tuberculosis incidence in a densely populated and much-bombed urban area has been examined. The principal findings are:

1. As compared with 1938, there was in 1941 an increase of 43% in the rate of occurrence of new cases of pulmonary tuberculosis and of 15% in new cases of non-pulmonary tuberculosis. The pulmonary tuberculosis death rate increased over the same period by 72% and the non-pulmonary rate by 67%. These increases are much greater than for England and Wales as a whole.

2. The increase in the incidence of tuberculosis affected children much more than adults, particularly in the non-

pulmonary type, in which the increase was practically confined to the "under-fifteens" (except the increase of tuberculous meningitis, which extended to adult ages).

3. At ages over 25 males have been more affected than females. Below 25 it appears that, with the non-pulmonary type, females have been more affected than males, but with pulmonary tuberculosis at these younger ages there is no conclusive evidence that one sex has been more affected than the other.

4. The increase in non-pulmonary tuberculosis has occurred almost equally in all the principal sites, except in abdominal tuberculosis, in which the increase was significantly lower.

5. New cases of pulmonary tuberculosis increased more in adults than new cases of the non-pulmonary disease. This fact, coupled with the evidence of site distribution for non-pulmonary forms in children, suggests that contact and droplet infection has been an important feature in London.

6. There is evidence both that pasteurization of milk has held back the spread of bovine infections and that the principal infecting source is human.

7. Factors influencing the incidence of tuberculosis include changes in the age and sex distribution of the population as a result of evacuation and of recruitment to the Forces, the strain and overcrowding resulting from bombing, fatigue and lack of rest, restriction of diet, and, on the other hand, increased employment and financial resources for those formerly on the verge of poverty. In mental hospitals the increased incidence is greater than in the population as a whole.

WARTIME DERMATOLOGY

WITH A PLEA FOR ECONOMY

BY

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The treatment of diseases of the skin in peacetime is considered of little importance and of no urgency, as the sufferers are said never to be cured nor yet to die. In recent years, however, treatment has advanced considerably and so have teaching and hospital facilities. Only when the whole of the available working power of the country is mobilized is the crippling effect of diseases of the skin fully realized, and their treatment assumes added importance in wartime medicine (Vickers, 1940).

In the Services it was soon found that many man-hours could be lost through trivial skin complaints. At sea about 50% of the daily attendances at the sick bay are for skin complaints. This takes up time and space and medical stores, of which only a limited stock can be carried. Scabies has become rife in the large centres of population, and as a result its prevalence has increased in the Navy. Recent experience of dermatology in the Naval Medical Service has brought several facts forcibly to my attention, and these are expressed in the following notes.

Material

The survey covers a period of two and a half years, which began one month before the opening of hostilities. This period falls naturally into three parts—namely, six months at sea, eighteen months ashore, and a second period of six months at sea.

The first part is the experience of six months afloat in cold or extremely cold conditions with a personnel of approximately 500 men. During this time there was little contact with centres of population, and the food was good, with a reasonable amount of fresh fruit and vegetables. The accommodation was crowded and the hours of darkness long, but the general health remained good. The second part is the experience of the skin department of a large naval hospital at home. Here there was accommodation for 28 in-patients, and out-patients were seen by consultation. The cases were drawn from all three Services in the area and the ships based on the port. A small number of foreign invalids were received. The third part is the experience of six months afloat in tropical conditions with a personnel of approximately 1,600 men. Little contact was made with centres of population, and fresh food was intermittently available. The accommodation was satisfactory and the period of daylight 12 hours. The general health was also satisfactory.

Circumstances peculiar to the Service are found to be on both the credit and the debit side. The discipline enables the medical officer to obtain greater control over treatment, but the exigencies of the Service may interfere with it. The population is entirely male afloat, and largely so ashore, while children are not included. The standard of physical fitness is above the average of the general population. The nursing facilities are limited. The number of attendants is small, and their training is short judged by civil nursing standards. Accommodation is limited, and isolation difficult except in the hospitals. At sea, facilities for dispensing are often poor and replacement of medical stores is difficult; rapid changes in climatic conditions are encountered, and the laundry is often overtaxed. Ashore, the personnel are apt to move from one area to another without warning.

Restrictions imposed by War Conditions.—Economy in all things is of paramount importance in wartime. Loss of man-hours is a matter for grave concern, and those affected with skin lesions must continue their normal work wherever possible. If it is necessary to take a patient off work his sick period must be kept to a minimum. Economy in various drugs is an essential part of the national economy, and where an alternative exists the inferior drug may have to be employed in the national interest. Where alternative treatments are possible, that which combines effectiveness with economy should be chosen without regard for the personal experience or preference of the medical officer or patient. The nursing staff is relatively reduced in number and the training period for probationers is shortened. The standard of physical fitness is lower than in peacetime. The necessity for black-out, with impaired ventilation and the wearing of gas masks, must have a deleterious effect on skin conditions.

The Cases

First Part.—During this period few skin cases were encountered. These consisted of a number of cases of impetigo and scabies and several cases of dermatitis of the hands, apparently due to change from civil to Service occupation.

Second Part.—During this period 1,149 cases were seen—652 as in-patients and 497 in consultation. There were a large variety of conditions, but only the more common ones are shown in Table I.

TABLE I

Disease	In-patient	Out-patient	Total
Dermatitis from all causes	31·6%	30·7%	31%
Seborrhoeic dermatitis	8·5%	8%	8%
Occupational dermatitis	4%	7·6%	5·5%
Dermatitis medicamentosa	3·7%	1·5%	3%
Scabies	27%	9%	18%
Impetigo	16%	4%	10%
Mycosis*	8%	9%	8·4%

* Including tinea pedis, tinea cruris, and tinea circinata.

Third Part.—During this period 349 cases were treated. As these cases were seen afloat, they were kept under observation up till the time of writing—i.e., two months after the end of the period. Only those conditions with an incidence of over 5% are shown. They were: mycosis, 56%; scabies, 15%; miliaria rubra, 13.5%; and impetigo, 8%.

Treatment

Four conditions make up 67.4% of the cases in Part 2, and four conditions make up 92.5% in Part 3. Three conditions are common to both—namely, scabies, impetigo, and mycosis—the remaining two being dermatitis from all causes and miliaria rubra. Briefly, the treatment used in those five conditions was as follows:

Scabies.—During Part 2 an emulsion of benzyl benzoate was employed. The formula and procedure for this emulsion were described in a previous paper (Carslaw and Swenarton, 1941). In Part 3 this emulsion was unobtainable, in the early months sulphur ointment (*B.P.*) being used, and later the benzyl benzoate mixture with soft soap and spirit. A course of treatment in each case consisted of three applications in three days, with a hot bath before treatment. Disinfestation of all clothing

was carried out. The results are shown in Table II. The 4 cases which failed to respond to sulphur treatment responded later to a course of benzyl benzoate. The minimum time of observation after treatment has been 2 months.

TABLE II

Treatment	1 Course	2 Courses	Failures	Total
Benzyl benzoate mixture ..	27	4	—	31
Sulphur ointment	18	1	4	23

Impetigo.—The treatment for impetigo in Part 2—i.e., in the home climate—was sulphanilamide ointment followed by a brilliant-green stearate paste. This treatment was described in a previous paper (Carslaw and Swenarton, 1941), and proved successful. In the Tropics the paste was not stiff enough, and the sulphanilamide ointment was contraindicated because of the ointment base. The routine treatment in Part 3 was swabbing with lotio hydrarg. perchlor. 1 in 1,500, followed by the application of lotio calaminae. This treatment was carried out twice a day. Firm dry crusts were thus formed which on separation left a healed surface. By this means 27 cases were treated without a failure, and the patients were able to carry out their full duties. The cases of impetigo occurring in the Tropics were of a mild type.

Dermatitis.—This term is taken to cover allergic dermatitis, seborrhoeic dermatitis, dermatitis venenata, dermatitis medicamentosa, and occupational dermatitis. The treatment varied to a certain extent with the aetiology, but was chiefly influenced by the histology and the need for economy. The dermatitis might be exudative, inflammatory, parakeratotic, or lichenified, and the treatment was normally lotio plumbi (*B.P.*), ichthyol 10% in water, aqueous gentian violet 1%, lotio calaminae with tar, or tar 5% in zinc ointment. The ointment base was used only if there was considerable scaling.

Miliaria Rubra.—This condition was almost universal in the Tropics, and only the more severe cases could be given treatment. This consisted of lotio calaminae 2 parts, spirit 1 part, to which was added carbolic acid 1% and in some cases menthol 1%.

Mycosis.—Ingram (1942) recently drew attention to the increasing incidence of ringworm infection of groins and toes in the Services. This is borne out by the fact that there were 196 cases of ringworm infection in Part 3—i.e., 56% of all cases. Andrews (1938) states that it is not the fungicide but the method of application that is of importance, and gives a list of fungicides. When it was realized that mycotic infections would be numerous the fungicides carried in the ship were checked and a plan devised. The first cases were treated with tinct. iod. mitis for three days, followed by salicylic acid 5% in spirit for four days, this course being repeated as often as necessary. Salicylic acid 5% in spirit, increasing up to 20% for some cases, was next employed. The limited stock of chrysarobin ointment (*U.S.P.*) was brought into use, and later on gentian violet 1% in spirit was pressed into service. The

TABLE III

Treatment	Duration of Treatment in Days			Failed	Total Cases
	1–7	8–14	15+		
	%	%	%	%	
Chrysarobin oint.	78	11	—	11	36
Tinc. iod. mitis ..	37	31	20	12	51
Gentian violet 1%	67	20	—	13	15
Tinc. iod. mitis and ac. salicylic. 5%	13	22	52	13	23
Ac. salicylic. 5–20%	26	26	15	33	39
Thymol	10·5	10·5	21	58	19
Ac. carbol. 1% and sulphur oint. ..	—	30	—	70	10
Mercuric iodide ..	100	—	—	0	3

last was found to be impracticable on account of the staining of clothing, and so thymol 5% in spirit was tried. As thymol proved unsatisfactory a return was made to tinct. iod. mitis twice a day without salicylic acid. Carbolic acid 1% in sulphur ointment (*B.P.*) was given a short trial, and mercuric iodide in spirit was used for 3 cases but was found to cause second-degree burning and destruction of tissue. Table III shows the results achieved with the various treatments. It must be remembered that the number of cases in each group was partly governed by the quantity of the drug carried.

It will be seen that chrysarobin ointment treatment was the most successful, followed by gentian violet 1% in spirit and then tinct. iod. mitis. A 5% solution of chrysarobin in water was found to be at least as efficacious as the ointment, but only 2 drachms of dry chrysarobin was available. The extent of the ringworm infection was remarkable, 75 cases having lesions on the body in addition to those on the feet or groins. In one case large patches of mycosis extended over almost the whole of the bathing-drawers area, and in another practically the entire back was covered by a single patch. The 58 cases of infection of the feet were controlled by the application of gentian violet lotion 1%, and occasionally Whitfield's ointment was applied if the dry scaling became marked. This treatment was found to be successful, and although it is not suggested that the cases were permanently cured, the men were able to continue with their work and were free from symptoms. The fungus was distributed on the body as follows: tinea cruris and circinata, 68 cases; tinea cruris only, 62; tinea pedis only, 40; tinea cruris and pedis, 11; tinea circinata only, 8; tinea cruris, circinata, and pedis, 6; tinea circinata and pedis, 1 case.

Discussion

I feel that the treatment of skin diseases has been too conservative, shrouded in mystery, and bogged in ointment. Textbooks of dermatology are of little use to the Service medical officer in wartime, as it is often totally impossible to carry out the treatment recommended; and, furthermore, a textbook for temperate climates is useless for the Tropics. I think the following are the salient points in Service wartime dermatology: (1) economy is of national importance; (2) the bulk of medical stores must be kept small; (3) simplicity and, where possible, standardization ease the burden of an overtaxed nursing staff; (4) early diagnosis and treatment saves loss of man-hours.

Two treatments described in this paper are contrary to the policy of economy advocated. Chrysarobin ointment was used, not the aqueous solution; and a mercury lotion was employed in the treatment of impetigo. The reason was that the ointment and the mercury were carried in the ship, though it would have been an economy if they had been replaced by the powder and a larger stock of aniline dyes.

Economy has been stressed recently in many articles in the medical press. Brain (1941) states: "No mention has been made of mercury because, although of value, it is more essential to the national economy in war industries." This statement was made in discussing the treatment of impetigo.

Ointments could, it is felt, be largely discarded, particularly in summer and in hot climates; mercury be replaced by aniline dyes; and starch poultices be put out of production. Dressings are often changed four-hourly, but this may retard healing, and a twice-daily dressing is normally sufficient and in many cases not even necessary. Dressings should always be as light as possible, no wool or lint being used. Brain (1941) states that an ointment in the treatment of impetigo is inadvisable, as a film of grease retains exudates and sweat, which encourage the growth of organisms and irritate the follicles. Both Conybeare (1940) and Brain stress that a dry intact stratum corneum is Nature's defence against skin infection. The saving in ointment means a conservation of the all-important fats. Those drugs which can be carried in a powder or crystalline form save space, as they are commonly used in weak aqueous solutions. In this connexion chrysarobin powder and gentian-violet crystals should always be carried in this form and never as an ointment or in solution. Crude coal-tar should be substituted for a prepared tar.

The best results are attained by the use of a comparatively small number of remedies (Conybeare, 1940), and simplicity saves the time of nursing and dispensing staffs. Early diagnosis, and therefore the early institution of treatment, means a smaller area to treat and a saving of stores and time lost.

In many ways life has been made more simple by the introduction of rationing in domestic life, and a plea is made that the treatment of skin conditions could and should be simplified to conform with the national war effort.

Summary

A survey is made of 1,498 skin cases seen in the Royal Navy in wartime.

It is shown that five conditions cause the majority of skin casualties in the Navy. The treatment used for those five conditions in two and a half years of wartime dermatology is very briefly described. Emphasis is placed on the treatment of mycosis—for which chrysarobin is recommended—as those cases were unusually severe and numerous.

The difference between the civil practice of dermatology and dermatology in the Service is mentioned and the added difficulties of war conditions are noted.

A plea is made for greater economy and simplicity in the treatment of skin conditions.

I am indebted to Surg. Cmdr. Patrick for permission to publish this paper.

REFERENCES

Andrews, G. C. (1938). *Diseases of the Skin*, 2nd ed., Saunders, Philadelphia.
Brain, R. T. (1941). *British Medical Journal*, **2**, 492.
Carslaw, R. W., and Swenarton, J. A. (1941). Ibid., **2**, 225.
Conybeare, J. J. (1940). *Textbook of Medicine*, Livingstone, Edinburgh.
Ingram, J. (1942). *British Medical Journal*, **1**, 54.
Vickers, H. R. (1940). *Med. Pr.*, **204**, 316.

LIGATURE OF INNOMINATE ARTERY FOR RIGHT SUBCLAVIAN ANEURYSM: END-RESULT

BY

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In the case of which the end-result is here recorded, the innominate artery was ligatured in Dublin in May, 1932, for right subclavian aneurysm. The patient died 8 years and 4 months later, in Sept., 1940, presumably from rupture of an aneurysmal sac. No details could be obtained. Death was sudden and unexpected.

Three previous cases have been reported from Dublin; these occurred in the days before aseptic surgery. Coppinger of the Mater Misericordiae Hospital was the first surgeon in Europe to tie successfully the innominate artery for subclavian aneurysm (1893). Sixteen months after operation "the aneurysm was represented only by a small movable and hard filbert-sized tumour." In this case the carotid artery was divided between two ligatures. Thomson of the Richmond Hospital lost a case from secondary haemorrhage on the forty-second day, and O'Grady of Mercer's Hospital reported a case in which the patient died of "apoplexy" on the day following operation. In this instance the carotid artery also was tied. Ligature of the innominate artery remains a rare procedure. Up to and including the year 1922 there were 57 cases on record with 19 recoveries (Ballance, 1921). Rundle (1937) adds 5 subsequent cases. I have been unable to obtain the figures for recent years, but, judging by the paucity of cases in the past, it may be assumed that the total number to date does not exceed the round figure of 70. It is not the purpose of this communication to discuss the merits or drawbacks of the various surgical procedures. Whatever operation is employed for aneurysm of the aorta or any of its main branches the life of the patient may be prolonged, but he remains in a condition of perpetual jeopardy, and seldom survives for many years. The longest survival period after ligature of the innominate artery which I could find in the records is 10 years (Smyth of New Orleans, quoted by Erichsen, 1895). After ligature of the subclavian and common carotid for innominate aneurysm a patient was alive 18 years after operation (Baldwin's case, mentioned by Rundle). I have had one case of abdominal aneurysm in which the patient lived for the same period after the introduction of Colt's wires. These cases are, however, the exception; the majority of "cures" and "successes" are recorded when only a few weeks or months have elapsed after operation. Guidance as to prognosis is difficult to obtain from published cases: exaggerated claims are made long before real results could be estimated. Post-mortem specimens obtained shortly after operation are not convincing evidence of "cure" unless death can be attributed to a condition neither directly nor indirectly concerned with the aneurysm. Even when this can be proved, it must be remembered that most of the patients who survived for many years eventually died of a secondary dilatation of the artery or a recurrence of the original aneursym. The fact is, operation is palliative only, although a few surprisingly good results are on record.

In the original report of the case under review it was pointed out that the ideal operation for subclavian aneurysm is proximal and distal ligature with excision of the sac. As there was an apparent "cure" after ligature of the innominate artery, a contemplated second-stage operation (i.e., an attempt to ligature the distal arteries and excise the sac) was abandoned.

History of the Case

The patient, approximately 35 years of age, was wounded in France in 1915. On examination in 1932 a portion of a bullet could be seen by *x* rays deep to the insertion of the right sterno-mastoid muscle. There was a pulsating swelling the size of a duck's egg above the right clavicle. The right recurrent laryngeal nerve was paralysed, but, apart from this, there was a striking absence of the more usual clinical signs. The radial pulse was not affected, the blood pressure was the same on both sides, there was no bruit, and expansile pulsation could not be detected. The Wassermann reaction was negative.

It was hoped that ligature of the subclavian artery behind the scalenus anticus muscle would be possible and that, later, distal ligature and excision of the sac could be accomplished. The clavicle was divided in two places so that the central portion with its pectoral attachments could be turned downwards on

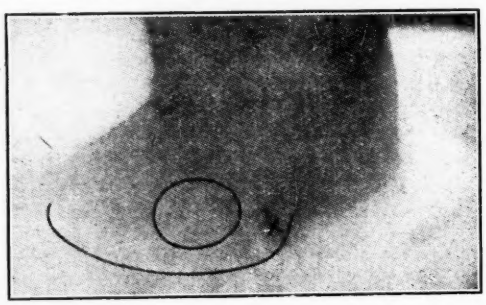

FIG. 1.—Subclavian aneurysm. The position of the tumour and the line of incision are shown. × marks the position of the bullet.

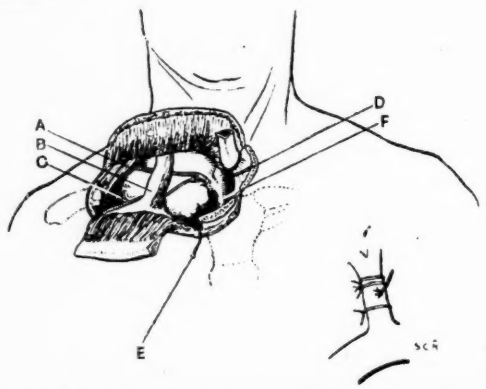

FIG. 2.—Subclavian aneurysm treated by ligature of the innominate artery. A, Transversalis colli artery. B, External jugular vein. C, Suprascapular artery. D, Divided sternum and sterno-clavicular joint retracted upwards. E, Hook retractor just above attachment of first rib to sternum. F, Innominate artery. Inset shows ligatures applied proximal and distal to thyroidea ima branch.

the chest (Moynihan). The aneurysm in this manner was laid bare and the bullet removed. The external and internal jugular veins were found obstructed and distended. The suprascapular and transversalis colli arteries were seen lying transversely across the tumour. The scalenus anticus muscle, as such, had disappeared and the phrenic nerve was not located. The sac clearly extended to the bifurcation of the innominate artery, and in consequence proximal ligature of the subclavian artery was impossible.

There was ample exposure for exploration in detail, but ligature of the innominate artery required more room if rough handling of the sac was to be avoided. The portion of the manubrium sterni which is closely related to the sterno-clavicular joint was cleared back and front and divided with a chisel. There was no interference with the first costal cartilage. The divided portion of the sternum carrying the sterno-clavicular joint and the inner portion of the clavicle was retracted upwards and to the left. The innominate artery was now seen clearly in its entire length (2 inches). The veins were not visible, the pleura caused no embarrassment, and the nerves remained hidden. The thyroidea ima branch was present. Two No. 2 catgut ligatures were passed round the main artery distal to this small branch (Figs. 1 and 2). They were tied slowly and gently to avoid, if possible, rupture of the coats. Pulsation in the aneurysm ceased and the radial pulse disappeared. Each pulsation of the artery now had the appearance of a sledge-hammer blow on the point of occlusion. For safety a third ligature was placed nearer the aorta. The thyroidea ima branch was ligatured with fine silk.

The divided clavicle and portion of sternum were replaced, the former being held in position by sutures through drill-holes in the bone. In three days the radial pulse reappeared, and in a week it was of normal volume. Six weeks later some faint pulsation could be felt in a very small swelling at the site of the original sac. Four months after operation there was no pulsation. Six years later the case was examined by Mr. R. A. Stoney of Dublin. He kindly reported that the patient appeared quite well. A small lump could be felt, but there was no pulsation or thrill.

Comment

Ligature of the innominate artery is not a difficult operation provided the exposure is adequate. Exploration, and the clearing of the deep surface of the manubrium sterni, are greatly facilitated by turning down the middle portion of the clavicle. In most cases I think this should be the first major step in the operation.

If ligature of the innominate is seen to be necessary a portion of the sternum should be divided and retracted upwards with the inner end of the clavicle. This can be accomplished without division of the first costal cartilage.

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BIBLIOGRAPHY

Ballance, Sir Charles (1921). *Brit. J. Surg.*, **9**, 438.
Erichsen, Sir J. E. (1895). *Science and Art of Surgery*, 10th ed., **2**, 190, London.
Rundle, Frank (1937). *Brit. J. Surg.*, **25**, 172.
Wheeler, Sir W. I. de C. (1933). *Surg. Gynec. Obstet.*, **56**, 257 ; *Med. Annual*, 1928, 1933, 1934.

CEREBROSPINAL FEVER

A REVIEW OF 500 CASES TREATED BY CHEMOTHERAPY WITHOUT INTRATHECAL SERUM

BY

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For the purpose of comparison of the results of the various forms of treatment Table I gives the case-mortality figures for cerebrospinal fever patients admitted to this hospital during the last 10 years.

TABLE I

	Intrathecal Serum					Sulphanilamide and Intrathecal Serum	Sulphapyridine and Intrathecal Serum	Sulphapyridine or Sulphathiazole without Intrathecal Serum		
	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
Cases ..	2	4	5	15	14	15	53	322	158	59*
Deaths	2	1	3	5	6	2	11	29	13	3
% ..	100·0	25·0	60·0	33·33	42·87	13·33	20·75	9·03	8·22	5·1

* Only first 20 cases (1 death) are included in the present series.

Within a period of two years and two months (Jan., 1940, to Feb., 1942) 500 patients admitted to the Cardiff City Isolation Hospital suffering from cerebrospinal fever were treated by chemotherapy without intrathecal antimeningococcal serum. As this is one of the largest series of cases of cerebrospinal fever ever so treated, a brief analysis, together with a few observations, may be of general interest. The ages ranged from an infant of 6 weeks, who made a complete recovery (examined 12 months after discharge), to a fatal case in a person aged 70 years. All cases of cerebrospinal fever which were admitted during the period are included, even those that were moribund and died within a few minutes of admission. The total number of deaths was 43, furnishing a gross mortality rate for the whole series of 8.6%.

With a disease such as cerebrospinal fever, which has a fulminating form that often kills on the first day, a totally erroneous case-mortality rate is obtained if cases that end fatally within 24 hours of admission are excluded. Were such a procedure adopted in this series the case-mortality rate would have been recorded as only 4.8%.

Age and Sex Distribution

Table II gives the sex distribution and case-mortality rates of the various age groups.

TABLE II

Age Group	Males			Females			Total Cases		
	No.	Deaths	%	No.	Deaths	%	No.	Deaths	%
0–3 months	—	—	—	1	—	—	1	—	—
3–6 ,,	6	2	33·3	7	2	28·6	13	4	30·8
6–12 ,,	16	1	6·2	11	1	9·1	27	2	7·4
1–5 years	62	4	6·4	53	3	5·6	115	7	6·1
5–10 ,,	27	1	3·7	29	3	10·3	56	4	7·1
10–15 ,,	27	2	7·4	24	—	—	51	2	3·9
15–20 ,,	50	—	—	21	—	—	71	—	—
20–25 ,,	22	—	—	11	1	9·1	33	1	3·0
25–30 ,,	19	1	5·3	5	—	—	24	1	4·2
30–35 ,,	20	2	10·0	21	3	14·3	41	5	12·2
35–40 ,,	10	1	10·0	6	—	—	16	1	6·2
40–45 ,,	10	3	30·0	7	2	28·6	17	5	29·4
45–50 ,,	5	1	20·0	5	—	—	10	1	10·0
50–55 ,,	4	—	—	8	2	25·0	12	2	16·6
55–60 ,,	5	2	40·0	—	—	—	5	2	40·0
60–65 ,,	4	2	50·0	—	—	—	4	2	50·0
65–70 ,,	2	2	100·0	1	1	100·0	3	3	100·0
70–75 ,,	—	—	—	1	1	100·0	1	1	100·0
All Ages ..	289	24	8·3	211	19	9·0	500	43	8·6

It is noteworthy that in the favourable age group 10 to 30 years there were 179 cases with but 4 deaths, giving a case-mortality rate of only 2.2%. In the subgroup 15 to 25 years there were 104 cases with but 1 death—i.e., a case mortality of even less than 1% ; whereas among four patients of over 65 years there was no instance of recovery. From this will be seen the importance of furnishing the age distribution for any case-mortality figures for cerebrospinal fever. There were 44 non-civilians in this series, all of whom recovered, probably on account of their general fitness, favourable age-grouping, and early admission to hospital for treatment.

Proposed Classification

From my experience of cerebrospinal fever I believe the following classification covers all types of cases.

1. *The Meningococcal Septicaemic Type.*—(*a*) Acute, fulminating, exhibiting the Waterhouse-Friderichsen syndrome with adrenal haemorrhages, purpuric eruptions, pallor, and collapse ; such patients frequently die before development of meningitis. (*b*) Chronic meningococcaemia with intermittent periods of pyrexia, usually petechiae and arthritis, occasionally lesions resembling erythema nodosum, and rarely maculo-papular eruptions. This type of case may recover spontaneously or proceed to meningitic involvement unless adequately treated with chemotherapy.

2. *The Meningitic Type.*—(*a*) Acute ; (*b*) subacute ; (*c*) chronic (including the post-basic variety of Gee and Barlow in infants).

3. *The Encephalitic Type.*—Though every case of meningitis is essentially one of meningo-cortico-encephalitis, cases undoubtedly occur, fortunately rare, in which lesions are found deep in the nervous tissue. In fact, at necropsy on one of my cases meningococci could be demonstrated in the internal capsule. These cases are difficult of clinical recognition, but the

brain-stem appears often to be involved with signs of bulbar palsy, especially pharyngeal paralysis and severe respiratory distress, but at the onset no pulmonary lesions are detectable. This type of case is usually fatal.

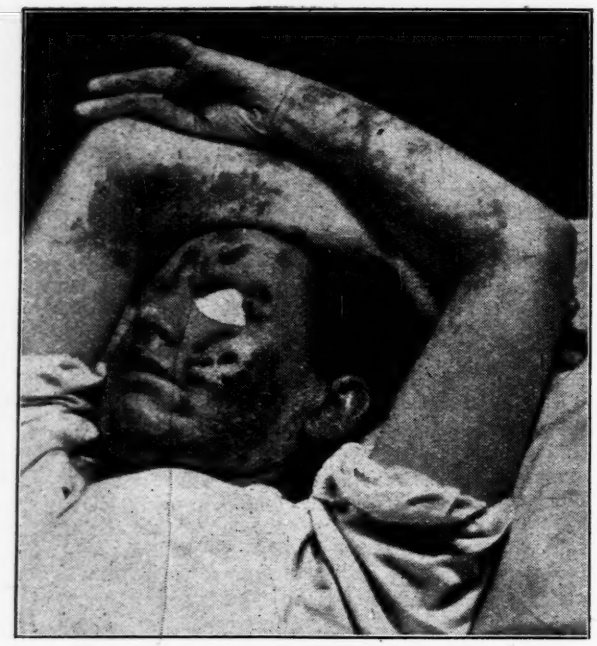
Special Diagnostic Features

It was observed that slight nuchal rigidity was a far more constant and early finding than Kernig's sign. Photophobia was conspicuous mainly by its absence. Contrary to the general impression regarding infants, a bulging anterior fontanelle was uncommon, but, rather, a depressed fontanelle was often present, being probably due to vomiting and consequent dehydration. The abdominal, knee, and plantar reflexes appeared to have no diagnostic significance except that the abdominal reflexes were almost invariably absent in those cases bordering on coma.

In only three instances did more than one case occur in the same household, but in one household there were 3 cases.

Eruptions and Complications

Purpuric eruptions, generally petechiae which appeared on the first or second day of disease, were present in 39% of cases, usually occurring in the more severe ones; but extensive purpuric eruptions were occasionally found in comparatively mild cases. Herpes—generally on the face, around the lips, though sometimes occurring in unusual situations, such as on the digits or palms of the hands—was present in 33% of the cases, usually towards the end of the first week of the disease. Unlike pneumonia, the presence of herpes was of no prognostic import. Both herpes and purpuric eruptions occurred in an additional 16% of the cases. The accompanying photograph shows an extensive herpetiform eruption in a woman aged 31, who had an attack of but moderate severity.



Severe herpes in a case of cerebrospinal fever of moderate severity: complete recovery.

The following were the main complications: Transient strabismus, 77; bronchopneumonia, 12 (usually confirmed post mortem); arthritis, 29 (mainly the larger joints); deafness, temporary and partial 11, total and permanent 7; transient albuminuria, 91; conjunctivitis or iridocyclitis, 17; transient paresis of arms, 3; temporary facial paralysis, 10; transient ptosis, 8; transient hemiplegia, 1; temporary mental derangement, persisting well into convalescence, 4; hydrocephalus, 5; dysphagia, due to severe neck retraction, 2; transient nystagmus, 2; orchitis, 1.

Differential Diagnosis

The following cases were erroneously admitted as suffering from cerebrospinal fever; Tuberculous meningitis, 25; pneumococcal meningitis, 8; aseptic meningitis, 10; influenzal meningitis, 2; subarachnoid haemorrhage, 9; poliomyelitis, 16; polio-encephalitis, 8; influenza, 58; lobar pneumonia, 8; bronchopneumonia, 14; miliary tuberculosis, 1; cerebral abscess, 1; cerebral tumour, 1; infective endocarditis, 1; frontal sinusitis, 1; tonsillitis, 14; otitis media, 2; bronchitis, 12; glandular fever, 1; tetanus, 1; rheumatic fever, 2; dysentery, 2; diphtheria, 1; pyelitis, 1; adenitis, 1; pleurisy, 3; gastritis, 1; measles and encephalitis, 1; whooping-cough and bronchopneumonia, 1; mastoiditis, 1; rubella and rheumatism, 1; paratyphoid B fever, 5; fractured base of skull, 1; uraemia, 3; catarrhal jaundice, 1; septic arthritis, 1; diphtheria, 2.

Conversely, cases notified as the following proved to be cerebrospinal fever: Polio-encephalitis, 1; poliomyelitis, 1; diphtheria, 2; typhoid fever, 1.

Chemotherapy

Sulphapyridine was employed in 471 cases and sulphathiazole in the remaining 29. Sulphathiazole appeared to be equally effective in promoting recovery and was less prone to produce nausea and vomiting.

Two grammes (4 tablets) was given by mouth on admission and repeated in 4 hours' time; then 1 g. 4-hourly for the next 72 hours; then 0.5 g. 6-hourly for a further 3 days. After the first 250 cases the dosage was increased to 2 g. 4-hourly for 4 doses and then 1 g. 4-hourly for 96 hours, followed by 0.5 g. 6-hourly for a further 3 days. The increased dosage was found to have a slight effect in diminishing recurrences and septic complications such as arthritis. Children under 12 years received half the adult dosage, and infants under 12 months a quarter. In all, 1,935 lumbar punctures were performed without any untoward effects—an average of 4 for each patient. No general anaesthetic was administered. Apart from relieving headache, the reduced intracranial pressure was considered less damaging to the nervous tissue. Incidentally, the cerebrospinal fluid furnished a satisfactory guide to the progress of the disease. No case was regarded as out of danger if the sugar had not returned to normal. Only 6 ventricular and 5 cisternal punctures were considered necessary. If the patient was comatose the tablets were crushed and given in nasal feeds. If vomiting occurred after ingestion of the drug or the patient were delirious and nasal feeding were difficult, the sodium salt of sulphapyridine was given in the earlier cases by intramuscular injections; but as sloughing often ensued in spite of care, this practice was discontinued and the sodium salt in equivalent doses was injected intravenously with three times its volume of normal saline. In severe cases, or if there were much dehydration, the sodium salt of sulphapyridine was given intravenously in about 0.5 to 1 litre or more of normal saline in 5% glucose solution by the vacoliter drip method.

Only one patient in the whole series received serum intrathecally. This was a woman aged 40 who had a fatal relapse after having been free from symptoms for 6 weeks after the cerebrospinal fluid had returned to normal. During her relapse chemotherapy appeared to have no effect, and no improvement followed the intrathecal serum, but there was slight temporary improvement after an intrathecal injection of her own blood serum. Two children, both aged 1 year, had second attacks after intervals of 2 months and 3 months respectively. In one instance the organism was of the same group in both attacks, but in the other case the organism could not be cultured on the first admission. The second attacks responded well to chemotherapy.

Fluids were pushed in all cases, as, to my mind, dehydration can contribute materially to a fatal issue. Furthermore, the giving of adequate fluids probably lessens the incidence of haematuria due to the depositions of acetyl derivatives in the kidneys. One patient who ultimately recovered and had been in coma for 10 days was given fluids by nasal feeds at 4-hourly intervals during that period.

Since extensive haemorrhages are not infrequently found in the adrenals, in the acute septicaemic cases, 5% glucose-saline (0.5 to 1 litre) was given intravenously as indicated above, as sodium chloride and glucose are advocated in case of adrenal damage (McCance, 1936). In addition such cases received

synthetic cortical extract (desoxycorticosterone acetate) intramuscularly, and in order to combat toxaemia 30 to 60 c.cm. of meningococcal antitoxin was also given intravenously in the glucose-saline. Several patients whose pulses were imperceptible on admission made complete recoveries on these lines. In all, 56 patients received glucose-saline intravenously, 34 serum intravenously, and 44 cortical extract intramuscularly. It was generally unnecessary to cut down on a vein for intravenous therapy. This new method of treating the acute fulminating septicaemic type of case was first introduced in this hospital early in 1940, and was published (Harries, 1940) in March of that year.

Patients who developed such complications as arthritis or iridocyclitis in convalescence received a second course of chemotherapy. All patients were given glucose freely, and even in the mildest purpuric cases a little common salt was added to the diet. If bromides were given as sedatives the sodium salt was administered rather than the potassium salt. Two patients who had neck retraction of such a degree as to prevent deglutition were successfully treated by the injection of a few cubic centimetres of novocain into the post-cervical muscles (Harries, 1936).

Sulphonamide Reactions.—These in the main were not alarming. Skin eruptions developed in 26 cases, jaundice in 4, marked cyanosis in 14, and transient haematuria in 3. No case developed agranulocytosis. One child, however, died from suppression of urine, probably due to renal damage; but permission for necropsy was not obtained.

No person in attendance contracted the disease. No masks were worn, as I believe the wearing of these predisposes to nasopharyngeal congestion and catarrh, which probably lowers the resistance of the mucous membrane. It is likely that infection of a healthy nasopharynx produces a temporary carrier state, with subsequent immunity. The giving of small prophylactic doses of sulphonamides in suspected cases had no effect on the meningococci except that the organisms appeared to be rendered drugfast, and large doses administered later were then less effective.

Bacteriological Investigations.—Morphological meningococci were found in 465 cases, or 93%. Cultures were obtained in 214 cases; of these 93% belonged to Group 1 and 3.7% to Group 2, while 3.3% were inagglutinable. Clinically, the various strains seemed to be of equal virulence.

Summary

A series of 500 cerebrospinal fever cases is recorded, with a gross mortality rate of 8.6%.

An age-distribution table indicates the most favourable age group as 15 to 25 years, with 104 cases and a case-mortality rate of just under 1%.

A suggested classification of all forms of cerebrospinal fever is given.

A new treatment for the acute fulminating septicaemic type is described.

Of the strains of the meningococci cultured 93% belonged to Group 1.

My thanks are due to Dr. Allison, who confirmed our bacteriological findings and who typed the organisms; to Prof. Duguid and Dr. Boissard for post-mortem examinations; and to Drs. Murphy, T. Thomas, Herapath, Lennox, Evans, and Garfield, quondam resident medical officers at this hospital, for their assistance in the treatment of the cases.

References

Harries, G. E. (1936). *British Medical Journal*, **2**, 627.
—— (1940). *Lancet*, **1**, 522.
McCance, R. A. (1936). Goulstonian Lectures, *Lancet*, **1**, 643.

W. L. Downing (*J. Iowa State med. Soc.*, 1941, **31**, 538), who records 11 cases in persons aged from 24 to 67, 4 of which were fatal, states that acute pancreatic necrosis is still an unsolved disease. When the diagnosis is doubtful, early exploration should be performed to avoid overlooking perforated peptic ulcer or other emergencies. If acute pancreatitis is found, and disease of the biliary tract is present, cholecystotomy or choledochotomy, or occasionally cholecystectomy, is indicated. Operation should be avoided in the hyperacute type. If the diagnosis is certain, conservative measures should be used. Early operation is advisable in all patients with acute or chronic cholecystitis to avoid the complication of acute pancreatitis.

THE MANGLED FOREARM

TREATMENT IN A SKELETON SPLINT WITH FIXED SKELETAL TRACTION

BY

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In a compound fracture of the forearm, in which the bones are shattered and there are extensive lacerations, a complex problem in immobilization results. Given good fortune, an ordinary plaster may prove very satisfactory; yet one can remember several cases in which removal of a plaster became an urgent necessity to allow further surgical treatment. The result was that redisplacement of the bones took place and the sepsis gained nothing from the loss of immobilization.

I have found the following method very useful in these severe cases. The advantages are that there is no danger of circulatory failure due to a tight plaster and that the wounds

Fig. 1.—Posterior view. Note that the Kirschner wire which transfixes the metacarpal does not interfere with movements of the thumb or pierce any of the extensor tendons.

can be fully inspected without disturbing the immobilization. The wound toilet needs no lengthy description except to emphasize the importance of excising all non-viable muscle and of providing a perfect drainage system if one feels that the wound is still contaminated even after excision.

Method

After the wound toilet is complete a fine Kirschner wire is inserted obliquely across the back of the radial border of the second metacarpal, about an inch proximal to the head of the bone. A second wire is put through the subcutaneous border of the ulna 3 in. distal to the tip of the olecranon. A large stirrup is attached to each of these wires. An assistant now holds the arm suspended by the distal stirrup; the elbow is left at a right-angle. The proximal stirrup is allowed to hang down behind the olecranon. The weight of the arm, so suspended, is enough to produce full length, though alignment and rotations will need to be adjusted.

While the arm is still held suspended the stirrups are connected together by two plaster ropes, each made of three 6-in. cellona bandages. Further adjustment of the fracture may be made while the ropes are drying. These ropes are parallel

Fig. 2.—Lateral view.

with the forearm, about 2 in. from it, and when dry convert the whole structure into a rigid skeleton splint with fixed skeletal traction. The dressing of the wounds is completed with a layer of wool and a bandage which encircles the side bars of the splint. The addition of extra wool anteriorly or posteriorly, combined with firm bandaging, will correct any tendency to a backward or forward bow. Finally a removable anterior plaster cock-up splint may be bandaged on to immobilize the fingers. When the patient returns to the ward the forearm is suspended vertically, with the elbow at a right-angle, and accurately counterbalanced with a weight. This is the best position to allow the swelling to subside; and puts least strain on the splint. Inspection of the wound or further surgical treatment can be carried out by removing the bandage which holds the dressing, and the arm need not be removed from its suspended position during the process.

Directly all active sepsis has disappeared the wires may be removed and a plaster applied. This can usually be done in two or three weeks. This point needs emphasis, since in the absence of definite indications the disadvantages of skeletal traction, such as wire-track sepsis and delayed union, will outweigh the advantages of this form of immobilization.

I am indebted to Dr. Geoffrey Robinson for his photographs of the splint.

Medical Memoranda

Notes on a Case of Death by Lightning

On Aug. 29, 1942, during a severe thunderstorm about 8.30 p.m., a farmer aged 54 was sheltering under a large bombing aeroplane lying in a grass field. A soldier about 200 yards away saw a "thunderbolt" fall, but did not trouble to investigate as there was no sign of fire afterwards. On the 30th, about 5.45 a.m., the corpse of the farmer was found lying supine under the wing close to the body of the aeroplane. Some camouflage netting, which stretched over the tail of the aeroplane, lay under the corpse. Also under the corpse and under the netting was a cross-piece of metal tubing about six inches long each way.

On the same day about 10.15 a.m. I examined the body, which had been taken to an outhouse near by. Rigor mortis was complete. The clothes, which were damp but not soaking, were removed. The cloth cap had a small hole in it. I could not see charring of the edges of the hole, though I looked carefully. Corresponding to the position of the hole in the cap there was a small hairless spot in the right parietal region looking like an abrasion. The face was congested, especially by the left cheek and left ear, where dark fluid blood oozed out of the pores of the skin. On each buttock over the ischial tuberosity there was a circular area about 1½ in. in diameter looking like a recent superficial burn. I could find no other signs of injury on external examination. The boots he was wearing were heavily shod with iron at heels and toes. His watch was still going. I think perhaps he was squatting or sitting on the ground, and the marks on scalp and buttocks show where the electric current passed.

Two fitters in charge of that particular bomber searched carefully inside and out, and found no sign of damage to the aeroplane, which is largely composed of metal. The aerial had a wire earthing it to a metal rod in the ground some 6 to 8 feet from where the corpse was found.

I do not know if similar deaths have been recorded. It is evidently not safe to shelter under an aeroplane in a thunderstorm. Perhaps it would have been quite safe inside the aeroplane, which was not damaged. I am a civilian practitioner, and record the case hoping it may be helpful to medical officers in charge of aerodromes.

Alfred V. Dill, M.D.

Tetanus in the Puerperium

Owing to the extreme rarity of cases of tetanus in the puerperium, it has been thought advisable, and important for statistical purposes, to record the following case.

Case History

A strong healthy woman aged 40 was delivered of a healthy child at a farm-holding on Jan. 21, 1942. Apart from difficulty of micturition during the third month, due to an impacted retroverted uterus, which was corrected without difficulty, her pregnancy ran a perfectly normal course. Her labour, too, which was supervised by the district nurse according to arrangement, was accomplished without any trouble, lasting some six hours. There was no tear of the perineum. The puerperium proceeded uneventfully until the tenth day, when the patient complained of a slight "stiffness of the neck." This was regarded by the nurse as a slight attack of fibrositis, but when, next day, the patient complained of stiffness of the jaw muscles and of inability to open her mouth properly or to swallow food and drink, the patient's doctor was sent for. On arrival he found the woman sitting up in bed in evident distress. There was a good deal of pain and stiffness in the neck, and trismus was very pronounced. Speech and swallowing had

become impossible. At this time there were no spasms of the limbs or general convulsions. Facial symptoms were fairly well marked. Later there was partial intermission of the symptoms and the patient could make herself understood. This, however, was only temporary, and she was admitted to hospital on Jan. 31, 1942, where she was seen by a consultant physician. Later that same day, while being fed through a nasal tube, she developed severe spasms and died.

Comment

When it was realized that the case was obviously one of tetanus the question that immediately suggested itself was, How did the infection occur? Was it via the skin or the birth passages? It is perhaps significant, especially when it is remembered that the tetanus bacillus is usually present in cultivated ground and horse manure, that this case occurred in a farm-holding. In regard to the skin, careful inquiry failed to elicit any history of recent cuts or external wounds, and examination revealed no evidence of any recent scars. On the other hand one can quite conceive how infection would occur by the birth passages. Although the district nurse supervised the puerperium, it appears that on several occasions the patient "attended to herself." One can easily imagine some member of the family handing the patient the necessary utensils, bowl, wool, etc., and there is a temptation to conclude that infection occurred in this way. Against this possible explanation, however, are the post-mortem bacteriological findings. Necropsy showed no lesions except in the uterus, from which a small piece of adherent placenta was removed, and a very careful bacteriological investigation failed to reveal the presence of tetanus bacilli in any of the birth passages. Some were found in the bowel, but this, apparently, is not unusual in the adult gut. The skin seems the more probable route of infection, in spite of the absence of external evidence, and one can only suggest that some tiny prick or scratch may have healed over before the illness.

The 1940 report of the Royal College of Obstetricians and Gynaecologists contains the findings of a special committee set up to investigate the question of tetanus in relation to childbirth. The conclusion arrived at was that cotton-wool as commonly supplied by chemists often contained many organisms, among which the tetanus bacillus was occasionally found. This may provide another possible explanation of the source of infection, but in the absence of any definite findings, both in regard to the skin and to the birth passages, the mode of infection must remain "something of a mystery."

Dundee. A. T. Duncan, M.B., Ch.B.

Reaction to Rubber-ended Stethoscope

The following case is recorded as an example of extreme sensitivity to rubber. I know of no other instance in which reaction has occurred after such short contact.

A power-loom overlooker aged 35 was referred to me by his doctor on Sept. 2, 1942. He gave a history of reacting to his suspenders—i.e., the small rubber pieces to which the buttons are attached—in the spring of 1941. He was then told to stop wearing suspenders, and the eruption gradually cleared. At Whitsuntide of this year he went for a holiday to the country, and took with him a pair of rubber Wellington boots for walking through the fields. He noticed as he was tramping along, wearing these boots, that his socks kept falling down, leaving a gap between socks and breeches. The same night a circular band eruption broke out corresponding to this area and, of course, he stopped wearing the boots. The reaction was a severe one, and it was on account of this that his doctor referred him to me.

The facts up to now merely demonstrate a case of rubber sensitivity. After I had examined the affected parts of his leg the patient volunteered the information that the previous day his doctor had gone over his chest in the course of a general examination and listened to his heart. Pulling open his shirt, he showed me four perfect rings corresponding to the usual listening-sites. I asked whether the stethoscope was a metal one with a rubber-covered end, and the patient told me that that was so. I am informed that when the doctor listened to the heart no prolonged application of the stethoscope occurred, merely the usual fairly rapid auscultation, and yet the reaction provided four clearly marked red rings.

The above account demonstrates how easily slight contacts may be overlooked in cases of skin sensitivity.

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Reviews

ENDOCRINOLOGY

Endocrinology: Clinical Application and Treatment. By August A. Werner, M.D., F.A.C.P. Second edition, thoroughly revised. (Pp. 924; illustrated. 45s.) London: Henry Kimpton. 1942.

A Manual of Endocrine Therapy. By Bernard L. Cinberg, M.D. (Pp. 178. New York: Brooklyn Chemical Publishing Company, Inc.; London: Macmillan and Co. 1942.

There appears to be no end to the making of books on endocrinology, and it has therefore become our custom to draw attention to the special characteristic of each one rather than to discuss the details. Dr. Werner's *Endocrinology* throughout particularly emphasizes the close association between the endocrines and the autonomic nervous system, which is often insufficiently realized. Nevertheless we feel that the emphasis is not placed just where it should be in such statements as that the ductless glands act as governors over the autonomic nervous system, and that the present state of our knowledge of their functions is rendering such terms as neurasthenia, hypochondria, and nervous breakdown obsolete. Desirable as it is that such vague labels should be replaced by more accurate ones, we hesitate to believe that endocrinology will provide them. Surely of recent years the tendency has been the other way—to attribute to the hypothalamus a larger part in the control of the endocrines, while recognizing the psychosomatic origin of obscure nervous disorders. Once over that objection, the course becomes simpler, for we can approve unreservedly the prominence given by the author to the clinical aspect, while providing the reader with just that amount of anatomical, histological, and physiological information which will enable him to follow the argument without reference to other books. It is interesting to find Dr. Werner faithfully reporting cases successfully treated by preparations now often declared to be practically inert. As he states, when these products were used no better ones were available, and they are not recommended now. But it does show that here, as in other instances, the pharmacologist is a little too apt to sneer at purely clinical findings. The varieties of pituitary disorders are well described, and a judicial attitude is adopted on the vexed question of the number of individual anterior pituitary hormones. On the other hand the author has no hesitation in contradicting the ideas which have led to so lamentable a confusion between Simmonds's disease and anorexia nervosa. He is, however, more convinced of the existence of a male climacteric and of the hormonal origin of involutional melancholia than we should care to be. The lesser-known alimentary hormones are fully described, as is renin. Mongolism is regarded as an endocrine disturbance of pre-natal origin, but among the aetiological factors no reference is made to the age of the mother; it does seem clear, however, that this condition is particularly frequent if the mother is over 40 at the time of conception. The section on the thymus is judicial in tone, but the possible—even probable—association between hyperthymia and myasthenia gravis is not mentioned. Despite these minor points, here is a book of real usefulness.

Dr. B. L. Cinberg's *Manual of Endocrine Therapy* has a quite different purpose, which is to give a brief compendium of the subject without any attempt to provide a textbook. After the initial surprise at being informed that our knowledge (and not merely the therapeutics) of the endocrine system was very meagre until the discovery of insulin in 1922, we encounter a useful abstract of the therapeutic applications of each endocrine, briefly but critically stated, followed by a list of the preparations in current use, but omitting the polyglandular ones which are not biologically assayed. Only preparations thus standardized are recommended. There is also a useful chapter on diagnostic procedures, and a summary of therapy. A caution is given concerning the liability of desoxycorticosterone acetate to produce alarming oedema because of the rapid retention of sodium; this necessitates avoidance of large sodium dosage in conjunction with that synthetic hormone. It is curious to learn that the posterior pituitary has been used in the U.S.A. for the treatment of peptic ulcer, in view of the experimental work of Dodds and Noble, which showed gastric lesions could be induced by the injection of this hormone. The price seems high for so short a book.

MASSAGE, MANIPULATION, AND LOCAL ANAESTHESIA

Massage, Manipulation, and Local Anaesthesia. By James Cyriax, M.D. (Pp. 302; 26 figures. 12s. 6d.) London: Hamish Hamilton.

This book is written primarily for "graduate masseuses and the practitioners from whom they receive instruction." A small amount of space is devoted to theoretical considerations, but the greater part of the work comprises practical instruction in dealing with the conditions that the physiotherapist is commonly called upon to treat. The book is wider in its scope than most written on this subject and the method of presentation and arrangement of material is good. The conditions in each part of the body commonly requiring diagnosis and treatment are dealt with, beginning at the head and neck and progressing in an orderly sequence to the ankle and foot. Following this are chapters on the use of local anaesthesia and on traumatic neurasthenia. Terms frequently appear which indicate the empirical nature of much of the treatment and a lack of precise knowledge of the cause of many chronic pains and aches; for example, "rheumatic inflammation" and "capsulitis." Some controversial subjects are dealt with in a dogmatic fashion, and certain definitions are a little hard to accept—for example, "Sciatica is synonymous with pain running down the lower limb from above whatever its origin." There is a good chapter on referred pain, and the importance is emphasized of the use of local anaesthesia in diagnosis and treatment.

The chapters that deserve special mention are those on the alimentary tract and on the use of local anaesthesia. In the former Dr. James Cyriax deals in considerable detail with indications for abdominal massage and the technique that should be used for the various conditions in which this treatment is of value. In the latter he first stresses the difference between diagnostic and therapeutic local anaesthesia; then gives the indications and contraindications for each, and the merits or otherwise of massage in relation to both types of injection. In the chapter on referred pain the diagnostic use of local anaesthesia is also emphasized.

The description of methods of examination of various parts of the body, particularly the back, is very good. Illustrations are not numerous and consist entirely of diagrams. There is a very apt paragraph dealing with the activities of the bonesetter. Those for whom this book is written will find it useful and stimulating.

A NOTEBOOK FOR JUVENILE COURT MAGISTRATES

A Notebook for the Children's Court. By Margery Fry and Champion B. Russell. (Pp. 24. 1s. post free.) Oxford: Howard League for Penal Reform. 1942.

The juvenile courts set up by the Children and Young Persons Act, 1933, are a vital part of the nation's defence against adolescent crime. To be effective they must be staffed by magistrates with special knowledge of children, their problems, and the ways in which they can be dealt with and assisted. Several valuable books have been written on this work, but these are mostly large and none too easy to read. This notebook is a slim, paper-covered volume into which two experts have put an amazing amount of legal and practical knowledge for the benefit of magistrates of children's courts. They sketch what they have found to be real requirements in the arrangement of the court accommodation, such as waiting-rooms and lavatories. They mention small and important matters like the lighting, which should not dazzle bench or witnesses or accused, and the seating arrangements, which should allow quiet conversation between magistrates, the clerk, the offender, his parents, and the probation officer. They give much useful advice on the way in which the bench should handle the cases, and carefully point out the many pitfalls of law and practice that await the unwary, such as the putting of incriminating questions to a child who is not giving evidence, the failure to warn a child of his right to go before a jury, or too ready an acceptance of a plea of guilty. Throughout this small volume the authors express a constructive and humane spirit; their instruction is all calculated to increase the confidence of accused children, their parents, and witnesses in the kindness and justice of the magistrates, and to help the magistrates themselves to make the best use of remand, probation, and the other means of disposing of delinquent children. These methods are summarized at the end of the pamphlet in a handy table. Of psychological examination they say that magistrates who make full use of the professional help that is already available are not only doing wisely for the children but are helping to build up a co-operation between science and law which is full of hope for the future.

Notes on Books

A second impression has been published by Edward Arnold and Co. at 63s. of Sir H. HAROLD SCOTT'S *History of Tropical Medicine*, based on his Fitzpatrick Lectures delivered before the Royal College of Physicians of London in 1937-8. These two learned and comprehensive volumes were reviewed in a leading article in the *Journal* of October 7, 1939. The second Great Fire of London destroyed in its path some two million books, among them nearly 500 copies of this work. A reissue has therefore become necessary, and in an appendix the author records certain quite recent advances of importance that have taken place in the history of tropical medicine.

Dr. HARDIE NEIL has produced a third edition of a useful little book on *Ear, Nose and Throat Nursing* (Auckland: Clark and Matheson, Ltd.). In the small compass of 126 pages the subject is covered as a whole but without that special reference to nursing which the title suggests, though the after-treatment of operations is described. The testing of hearing and the vestibular tests are not of much interest to nurses, whereas the feeding of patients, which is of great importance, might be described with more detail and precision. There are also various descriptions of surgical technique, such as the author's method of ligaturing bleeding vessels in the tonsillar fossa, matters which do not concern nurses very much. The general survey of the subject will be, and no doubt has been, useful to nurses, to whom the complicated illumination required in practice renders the subject difficult and a little remote, but the emphasis on nursing is lacking.

Volume XLI of the *Transactions of the Ophthalmological Society of the United Kingdom* for the session 1941 is published by J. and A. Churchill at 40s. The contents include Mr. Affleck Greeves's presidential address on macular oedema, and a report of the discussion on ocular injuries resulting from the war. One of the sections was devoted to wartime ophthalmology, and Sir John Parsons read a paper on protection of the eyes from war injuries.

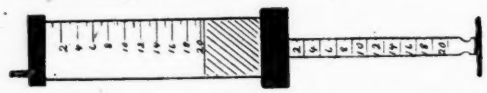
A copy of the *Collected Papers from the Middlesex Hospital* published during 1940-2 has been received from the cancer and general research committee of the hospital, and can be consulted in the Library of the British Medical Association.

The National Institute of Economic and Social Research has made arrangements for its publications to be issued by the Cambridge University Press. There will be two series: "Economic and Social Studies," edited by Prof. A. L. Bowley; and "Occasional Papers," the first of which is *The New Population Statistics*, by R. R. Kuczynski.

Preparations and Appliances

SYRINGE FOR CONTINUOUS INTRAVENOUS ANAESTHESIA

Dr. S. C. LEWSEN, M.R.C.P., writes: For successful continuous intravenous anaesthesia a fairly wide-bore needle introduced deeply into the lumen of the cubital vein is desirable. Splints have been devised to hold the syringe, which should have an eccentric nozzle, in position. I have found a wide piece of elastoplast bound firmly to the syringe and round the arm very adequate and less cumbersome in the majority of cases. It is a simple matter to arrange the direction of the



needle in the line of the vein by judiciously placed pieces of cotton-wool or lint between the arm and syringe. In order, however, to overcome the disadvantage of the elastoplast covering the graduation markings on the syringe, I have had a 20 c.cm. Record syringe made with a wide piston which has a flat surface graduated as shown in the sketch. This syringe was made for me by the Medical and Industrial Equipment Co., Ltd.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY OCTOBER 10 1942

A TUBERCULOSIS POLICY

Soon after the outbreak of war in September, 1939, anxiety began to be felt lest history would repeat itself and there would occur a reversal of the favourable pre-war trend of mortality from tuberculosis. By the autumn of 1941 vital statistics had amply justified this fear, and on the analogy of the war of 1914-18 it seemed likely that the death rates from tuberculosis would continue to rise unless steps were taken to limit the spread of infection and to deal with the determining factors. At the request of the Ministry of Health the Medical Research Council appointed a Committee on Tuberculosis in Wartime. Its report has just been published, and on page 436 we print summaries of the findings and main recommendations as given in the report.

In 1939 and 1940 the increased tuberculosis mortality appeared to be mainly in young women. The committee's terms of reference were therefore : " To assist in promoting an investigation of the extent and causes of the wartime increase in the incidence of tuberculosis, particularly among young women, and also advise the Council regarding possible preventive measures." But a survey of the position up to the beginning of 1942 showed that all age groups had been involved to some extent in the increased tuberculosis mortality, and that those most affected included not only young women but also children and the older male age groups. The special experience of London in this respect is dealt with in the excellent article by Dr. Allen Daley and Mr. B. Benjamin at page 417 of this week's *Journal*. Furthermore, it was evident that a new programme of statistical, clinical, and pathological researches must take a long time to complete. In the committee's view the present situation and the evidence already in hand justified administrative action now. Its report therefore consists of a statistical analysis of existing data, a critical review of the available evidence, and practical recommendations based upon them. Great public interest has been aroused by the increase in tuberculosis, and we are therefore glad that technical terms have been avoided whenever possible, so that the reading and understanding of the report should offer no difficulty to the intelligent layman, while at the same time it will provide a clear account for the medical profession.

A short section on our present knowledge of the types and development of tuberculosis is followed by a full analysis of the general trend of tuberculosis deaths, 1939-41, and a comparison with the last war. The increase in tuberculous meningitis in England and Wales has so far affected all age groups up to 45. Children up to 10 years show a relative increase in mortality of 50%, but young adult males and females aged 15–24 also show a relatively large increase (50%), though the actual number of excess deaths in this age group is less than that for the children. In the discussion on the many factors that may be responsible in wartime for an increase in tuberculosis mortality it is pointed out that these may not apply in the same degree to all the age groups among which the increase had been observed. Where children are concerned due weight must be given to infection of milk, particularly because of the evacuation to districts where little or none of the milk supply is pasteurized. But attention must also be focused on contact infection in the home and that resulting from unsuitable billeting. In connexion with young adults, especially women, an age group particularly susceptible to environmental factors, nutrition and conditions of employment are stressed, and in particular the fatigue resulting from the relatively long hours they are now working. The increase in tuberculous meningitis, moreover, points to the introduction into industry of previously non-infected persons under conditions that tend to lower resistance.

The bulk of the report deals with measures for preventing further deterioration in the tuberculosis mortality ; and the members of the committee, while indicating full measures for the combating of tuberculosis in the light of our present knowledge, state that they have applied themselves in the first instance to what is practicable under existing conditions. This should make it clear that they regard none of their recommendations as hypothetical or " ideal " measures. Few will quarrel with the implied sentiment that universal and efficient pasteurization is long overdue, or with the suggestion that specially skilled workers in pasteurization depots should be placed on the list of reserved occupations and that workers in this category who have already been called up should be returned to their posts, and, lastly, with the further suggestion that when transport and other difficulties make it impossible for pasteurized milk to be delivered to the home the housewife should by suitable propaganda be instructed to boil it. To prevent the spread of infection from unsuspected cases of pulmonary tuberculosis and to improve the outlook of those suffering from the disease extension of mass radiography is strongly advocated. An excellent practical exposition of the subject is given, with its division into pre-employment, employment, and periodic mass radiography. While indirect (or miniature) radiography is the method of choice in wartime (the essentials of this form of apparatus and the principles to be applied in its use are given in an appendix), the committee rightly stresses that the miniature method should be undertaken in preference to direct radiography, not merely for reasons of cost but rather where reasons of speed *plus* cost demand it, and recommends that, until apparatus for miniature radiography becomes available, mass radiography schemes should be instituted by means of the ordinary direct method. Indeed there are likely to be many instances in which full-size direct radiography will be at least as suitable a basis for a mass radiography scheme as the miniature method. It is recommended that for the present " miniature " apparatus already available or shortly to become available should be under the general direction of the Ministry of Health in order that the best possible use of the limited apparatus is ensured.

The care of persons discovered by mass radiography to have tuberculous lesions is discussed, and it is emphasized that the success of both mass radiography schemes and the treatment of those found to be suffering from active disease are intimately bound up with the removal of certain essential difficulties in the way. The first is shortage of institutional accommodation. Next, cogent reasons are adduced for improving the present financial provision for tuberculous patients. Thirdly, full consideration is given to industrial rehabilitation of both the convalescent non-infective and the chronic active case. Several possibilities in Great Britain are mentioned, involving part-time (ordinary work but with the number of hours reduced) and modified work (work, either full-time or part-time, carried out under less strenuous conditions than usual), with supplement to wages in each case. Insufficient emphasis is perhaps laid on the setting up of industries in connexion

with sanatoria for both residents and non-residents, a solution for rehabilitation of the tuberculous strongly favoured by some authorities; but probably it is a method practicable only to a limited extent in wartime. We would point out here that the subject of rehabilitation and care of the tuberculous has also been dealt with by a special committee of the Joint Tuberculosis Council.[1]

A further section of the report is concerned with measures that should be taken to raise the resistance of the population to the tubercle bacillus, particularly in susceptible groups, and tribute is paid to measures already taken by the Government to maintain in general the national health under war conditions. But more is indicated, and stress is laid on nutrition, favourable working conditions, fatigue, and domestic overcrowding. Continued emphasis is to be laid on the examination of contacts, particularly of children under 5 and young adults (15–30), and such examination should always include an *x*-ray examination, and tuberculin testing in the case of children. It is recommended that billeting authorities should be made aware of homes that are unsuitable for billeting on account of tuberculosis, and that they should be notified of any case of tuberculosis among those to be billeted. There is one notable omission. An important feature of the antituberculosis campaign should be the special care of pregnant women suffering from or suspected of tuberculosis. A valuable recommendation would therefore have been that a radiograph or screening of the chest should form an essential part of the antenatal examination of every pregnant woman, to be followed by a repetition of such an examination within two months of labour. And we would also emphasize, more than is done in the report, the need for reorganization of the tuberculosis services, whose efficiency varies very widely in different parts of the country. Even in wartime certain improvements may be possible, and at all events, as is pointed out in the report, steps should now be taken to study the best methods by which reorganization could be accomplished when circumstances permit.

The committee rightly points out that if its recommendations are implemented this should be accompanied by information and propaganda both to the medical profession and to the public. No one connected with tuberculosis work, however remotely, or for that matter with public health in general, should miss studying this report. We hope that there will be no delay in bringing forward legislation which will give effect to the important recommendations contained in it.

ANATOMY OF THE BRONCHIAL TREE

The description of the bronchial tree in the standard textbooks of anatomy is at present incomplete and largely inaccurate. To most students the lobar bronchus is in uncharted country as soon as it has entered the lung substance, and its distribution is described only vaguely by the statement that it divides into alternate ventral and dorsal branches. In spite of the studies of Aeby (1882) and Ewart (1889), and of certain later authors (Nelson,[2] 1934; Kramer and Glass,[3] 1932; Neil,[4] 1939), a more exact knowledge of the segmental distribution of the bronchi within the lobes has been limited to but a few workers, chiefly those engaged in the special study of diseases of the lungs. The remarkable development of thoracic surgery during the last decade has introduced more and more people to this general inadequacy in understanding of the anatomy of the bronchial tree, and it is no exaggeration to say that the need has become almost urgent for a complete revision both of the details taught to students and of the conception held by most practising doctors; and in this are included pathologists and radiologists as well as clinicians.

It should be imperative to the physician or surgeon who is specializing in diseases of the chest to acquire this complete knowledge, for without it an understanding of many fundamental aspects of intrapulmonary disease is necessarily incomplete. Thus, the important condition of lung abscess and its associated grades of septic pneumonitis is inseparably linked with this segmental anatomy, whether it be from the causal aspect, radiological interpretation, medical treatment, or surgical approach. The day when radiologist, physician, and surgeon were all content with a single postero-anterior radiograph of the chest and a conclusion that the lesion was situated in the upper, middle, or lower "zone" is now, we hope, long past. The first essential, therefore, for a proper study of many lung lesions is a basic knowledge of the anatomy of the bronchial tree, obtained from careful study of good casts and preparations, preferably augmented by personal dissection. The study of an actual case demands a lateral radiograph of the chest in addition to a postero-anterior, usually good bronchograms, and often bronchoscopic examination as well. It is surely as illogical to be content with an imperfect knowledge of the anatomy of the bronchi as to expect a surgeon to do his work efficiently elsewhere in the body without that exact anatomical background which is accepted as essential in his training. Students in both the pre-clinical and clinical subjects should be taught this anatomy, and appropriate questions should be asked in examinations.

Among recent papers on bronchial anatomy is one by Foster-Carter[5] (1942), which gives a brief and lucid account of the most modern studies of the problem, supported by a consideration of the comparative anatomy and development of the bronchial tree, by diagrams, actual illustration of certain specimens, by bronchograms, and by a celloidin cast. Those wishing to improve or refresh their knowledge of the bronchial distribution will find much of value in this paper. Certain previously confused areas, such as that of the distribution of the upper lobe bronchi, are described with more accuracy and clarity than in most earlier publications. In spite of the excellence of this account, it is desirable to draw attention to certain defects, more especially since they closely follow ones that appear in almost all previous papers. The first of these is the nomenclature. A certain confusion already exists in terminology, and many of Foster-Carter's own suggested names do not make for further clarity, as, for instance, his insistence on retention of the term "eparterial bronchus" for the branch to the right upper lobe and his introduction of the term "hyparterial bronchus" for the bronchus to the left upper lobe. A new name is worthy of acceptance if it either corrects a previous inaccuracy or is more clearly descriptive than the old one it seeks to supplant. It is difficult to see that the name "hyparterial bronchus" could by any possibility suggest accurately that it refers to the left upper lobe bronchus. Finally, there is the misuse of diagrams and drawings. A diagram or drawing, even in these days of excellent photography, may be desirable in order to express clearly and easily what perhaps can be shown only imperfectly by even the most skilful photograph. For the demonstration or teaching of anatomical features that have been worked out beyond all possible doubt they may be excellent; for the portrayal of features that have not been so widely investigated and

[1] *Tubercle*, 1942, Jan., Feb., and April.
[2] *British Medical Journal*, 1934, **2**, 251.
[3] *Ann. Otol.*, 1932, **41**, 1210.
[4] *British Medical Journal*, 1939, **1**, 495.
[5] *Brit. J. Tuberc.*, 1942, **36**, 19.

checked they are dangerous when unsupported by exact evidence; the author's own impressions or bias tend to creep in, and errors appearing in other apparently authoritative papers tend to be perpetuated. In almost all the papers on bronchial anatomy published during the last ten years this error is most apparent. Faulty diagrams abound. Although the diagrams in Foster-Carter's paper are much more accurate, certain misconceptions have again been perpetuated. The arrangement of the segments of the lingular process of the left upper lobe is, for instance, incorrectly portrayed, and the description of the lower lobe segments is lacking in that accuracy and completeness that is necessary if it is to be accepted as final.

A NEW METHOD OF AIR DISINFECTION

From recent work in England on the chemical disinfection of air two principal methods have emerged, both of which are certainly efficient, although neither has yet been applied in circumstances and on a scale which would prove its capacity to prevent the spread of air-borne infection. One of these is the spraying of hypochlorite solutions, which are believed to owe their effect to the liberation of hypochlorous acid gas. The other is the production of an "aerosol" or mist of very minute fluid particles consisting of or containing a germicide; these minute droplets are not intended to evaporate, and are believed to act by collision with bacteria-laden particles. Both because some of the germicides are poorly soluble in water, and because watery solutions evaporate, whereas a good aerosol should be persistent, propylene glycol has been used as a solvent: C. C. Twort and his colleagues,[1] for example, found the best of many reagents they tested to be a solution of hexyl resorcinol in propylene glycol. It was briefly announced last year by American workers who had taken up this study that propylene and other glycols are themselves air disinfectants of remarkable efficiency. A fuller account of this work has now been published by O. H. Robertson and his colleagues.[2] Their methods were of a nature now recognized as appropriate for this form of study, employing test and control chambers with adequate air circulation and the means of spraying in bacterial suspension and the germicide, and a device for obtaining plate cultures from measured samples of the contained air. Their chief observation is, briefly, that spraying such an amount of propylene glycol as to give a concentration of 1 g. in 2,000,000 c.cm. of air kills any of numerous species of bacteria almost instantly, even though their concentration be as high as 500,000 per litre of air. There were a few survivors for some minutes when the concentration of propylene glycol was 1 in 7,700,000; but even 1 in 50,000,000 had a pronounced bactericidal effect. By various forms of experiment, including mouse inoculation with washings of air sprayed with virulent pneumococci, it was shown that there is a true killing effect, sterile cultures from the air treated with propylene glycol not being produced in any of several other theoretically possible ways. Ethylene and trimethylene glycol were equally effective; glycerin had little action.

Droplets of propylene glycol evaporate rapidly, and as similar bactericidal effects are produced by pre-formed vapour it is concluded for this and other reasons that propylene glycol acts bactericidally as a vapour, and not in aerosol form. The contrast between its behaviour in air and in water is extreme: pneumococci will grow in broth containing 5% of it, and staphylococci in 10%. On the other hand suspension in 80% to 90% propylene glycol is immediately lethal to both. This is evidently bactericidal action of a quite unfamiliar kind, and no light has yet been obtained on its mechanism. Apart from its astonishing behaviour as a vapour, the peculiar effect of concentration on the behaviour of propylene glycol in liquid form should repay further study. The authors have tried Twort's hexyl resorcinol solution, and found it somewhat more effective than propylene glycol alone. Atmospheres containing the vapour of pure propylene glycol, on the other hand, are odourless and non-irritating and, so far as is known, non-toxic; administration of the liquid is without toxic effects. On present evidence, this method of disinfecting air seems even more promising than those with which work in England during the past few years has made us familiar.

1 *J. Hyg.*, Camb., 1940, **40**, 253.
2 *J. exp. Med.*, 1942, **75**, 593.

ACTION OF DRUGS ON THE COLON

The drugs in common use for the treatment of post-operative distension and paralytic ileus belong to two groups—the parasympathomimetic and posterior pituitary. The theoretical basis for employing the former group is well established, and its action is explained either by the replacement of the natural neuromuscular transmitter by synthetic choline derivatives, or its enhancement by physostigmine or prostigmine, owing to the inhibition of cholinesterase. In practice it has been found that although carbamylcholine and acetyl-β-methylcholine are effective stimulants of the gastro-intestinal tract, since they are not so rapidly destroyed as the natural acetylcholine, yet for that very reason they cause in effective doses unwanted side-reactions such as flushing, sweating, increased salivation and lacrimation, and a fall in blood pressure.[1] Physostigmine, though equally effective in stimulating the colon, is open to the same criticism; but prostigmine, the synthetic substitute introduced in 1931, is singularly free from these objections and has been used with success in the prophylaxis and treatment of post-operative distension and paralytic ileus.[2 3] The action of the posterior hormone on the large intestine has been strongly disputed, chiefly on the basis of experiments in dogs, which are not necessarily applicable to man. The vasopressor fraction can be used in the treatment of these conditions, though it is contraindicated in the presence of cardiovascular disease because of the coronary vasoconstriction. It has been argued that to be effective a drug should increase the propulsive activity of the large intestine rather than its segmenting movements. It is not true that any substance which is at all active will stimulate both equally, for morphine depresses peristalsis in the colon while increasing the tone.[4] On this basis physostigmine and prostigmine, which are believed to work by the enhancement of the natural processes (and an enema is an invaluable accessory), will be the drugs of choice.

Adler, Atkinson, and Ivy[5] have studied the action of various combinations of drugs upon 4 trained dogs with appendicostomies and 4 "fit" adults with colostomies. They used a modified balloon technique by which the propulsive force of peristalsis could be directly measured. In man, pituitrin, physostigmine, and prostigmine all increased the "propulsive motility" of the colon, but it was not possible to grade the dosage of physostigmine so as to avoid side-reactions. Oral administration of prostigmine (15 mg.) was effective after several hours' delay.

1 *British Medical Journal*, 1938, **1**, 1293.
2 *Lancet*, 1934, **1**, 942.
3 *J. Amer. med. Ass.*, 1938, **110**, 1165.
4 *Physiol. Rev.*, 1937, **17**, 618.
5 *Surg. Gynec. Obstet.*, 1942, **74**, 809.

Ergotamine given by itself had no discernible effect, but greatly increased and prolonged the action of the other drugs; and the authors concluded that a combination of ergotamine tartrate (0.25 mg.), prostigmine methylsulphate (0.25 mg.), and pituitrin (1.25 units) was the most effective, and worth trial in the treatment of post-operative distension and paralytic ileus. There is as yet no entirely satisfactory explanation of the synergistic action of ergotamine, though it is known that relatively bigger doses may stimulate the large intestine in intact animals. But this property may be used to increase the activity of the other drugs on the colon and so diminish their unwanted side-effects.

MALENESS, FEMALENESS, AND MENTAL DISEASE

It was noted a good many years ago by Mott in this country and by Myerson in the United States that male relatives of men suffering from mental disease are more frequently affected than are female relatives, and that this tendency is reversed in the case of women patients. It is difficult to devise any plausible explanation for this distinctly peculiar form of familial sex limitation. Penrose[1] has produced an ingenious hypothesis which, though highly speculative, does suggest a reasonable basis for the phenomenon. In addition it links together a number of diverse facts and also has the great merit of indicating useful lines of study for the future. From the psychological point of view maleness and femaleness are not two sharply contrasted characteristics. To some extent everyone is psychologically bisexual; but in normal persons there is a preponderance of instincts concordant with physical sex. It is possible to devise interest ratings, etc., which show a continuous gradation from the strongly female to the strongly male. Males and females occur in whom deviations in the normal direction are less marked, and finally there is some overlapping, a proportion of persons possessing frankly some of the instincts normally displayed by the other sex. There is in fact a continuous distribution which is clearly bimodal, but which equally clearly shows some overlap. It has also been found by observation and experiment with other forms that the underlying mechanism of sex determination is quantitative and not qualitative. A number of genes make for femaleness, a number for maleness; the result depends upon the balance. The selective advantage of clear-cut physiological division is such, however, that the mechanism has become so arranged that one or other balance is nearly always attained, and physical intersexes are therefore rare.

In man sex determination depends upon the X-Y chromosome mechanism. An individual with two X's is a female; one with an X and one Y is a male. But the discovery by Haldane of partially sex-linked characters in man, showing that sex determination is probably not the sole function of the X-Y pair, has as a corollary the possibility that autosomes (chromosomes other than sex chromosomes) play some part in sex determination. Sex determination may be brought about by some such mechanism as the following, though rather more elaborate. There reside on the X chromosome a concentration of genes making for femaleness, which are balanced by genes making for maleness situated in the other chromosome pairs. Two sets of the female-producing X genes overcome the complete set of male-producing genes, whereas one set alone is overcome by them. Human mental development being so recent, it may well be that mental sex constitution is inherited in a more primitive way than physical sex and is less concerned with the sex-chromosome balance. Imagine a gene, situated upon an autosome, which increases the quality of femaleness. Such a gene passed on by a man would tend to swing his sons in the direction of femaleness and in his daughters would, so to say, confirm their femininity. In short, such genes, though they would be transmitted by males or females, could only affect members of like sex in a family in the same sense; the same type of abnormality would tend to be present in father and son or in mother and daughter.

An association between sex inversion and mental disease has often been claimed, and so, Penrose argues, a hereditary mechanism of this kind determining psychological sex traits should be reflected in just that way observed by Mott and Myerson. Penrose shows that their figures when added together do indicate a highly significant tendency for affected relatives of lunatics to be of like sex. He produces further figures of his own, analysed in greater detail and based on the family records of 1,000 mental patients. The correspondence in this series also is highly significant. Penrose puts forward one or two alternative explanations, but regards the hypothesis outlined above as simpler and more comprehensive.

[1] *J. ment. Sci.*, 1942, **88**, 308.

LATERALITY DOMINANCE IN SHAKESPEARE

Considered in all its implications there is no more fascinating neurological topic than handedness. The distinction between the right- and left-handed is probably as old as mankind; and the contrast between symmetry of structure and asymmetry of function must have puzzled men from the first. It was natural for primitive man to attribute a symbolic meaning to natural occurrences, and here was a distinction inherent in his nature and ready, as it were, to his hand. To the Roman augur the bird on the left was sinister indeed. Drs. G. Walsh and R. M. Pool[1] have sought for references to right- and left-handedness, or laterality dominance as they call it, in Shakespeare's plays, and found that "he is as positive as were the ancient Hebrews in the glorification of the dexter side of the body and the condemnation of the sinistral. . . . Around the left hand and the left side of the body the dramatist encounters an aura of evil." There are not many references to handedness in Shakespeare, and in some the use of right and left is no more than conventional. The most convincing evidence for a characteristically Shakespearean twist to the distinction is to be found in the instance in which disfigurement is placed upon the left side: the mole on Imogen's left breast and the wart on Dromio's left arm are examples. Hand-to-hand fighting in a predominantly right-handed world would lead to scars on the left side of the body, a fact which is reflected in several quotations. The authors do not mention a reference to laterality which occurs in *King John*—"Slippers, which his nimble haste had falsely thrust upon contrary feet." This drew from Dr. Johnson the surprising comment, "Shakespeare seems to have confounded a man's shoes with his gloves. He that is frighted or hurried may put his hand into the wrong glove, but either shoe will equally admit either foot." Sir Walter Raleigh infers from this that Johnson "wore his boots indifferently, either on either foot, and further, which is yet a stranger thing, believed that all other boot-wearers practise the same impartiality." He adds, "This is a topic which demands, and would well repay, the expert labours of academic research. Very little is known about Johnson's boots." Perhaps this enchanting subject will tempt Drs. Walsh and Pool to a new study of literary laterality.

Sir Wilson Jameson will deliver the Harveian Oration before the Royal College of Physicians of London on Monday, October 19, at 2.30 p.m., at the College.

[1] *South. Med. Surg.*, 1942, **104**, No. 2, February.

War Medicine Series

The paper printed below is based on a lecture which was one of a series recently given at the British Postgraduate Medical School, Hammersmith

LOUSE-BORNE TYPHUS FEVER

BY

Sir J. W. D. MEGAW, M.B., D.Sc., I.M.S.(ret.)

(*Concluded from p.* 403)

Diagnosis

The diagnosis of severe cases in established epidemics is easy and mistakes are rarely made. On the other hand sporadic cases, especially when they are mild, are often missed. An attitude of watchful suspicion and resort to laboratory tests are essential if these mistakes are to be avoided. M. D. Mackenzie states that 87 groups of cases have occurred in Glasgow between 1901 and 1926: in 36 of these the first case was wrongly diagnosed. There is reason to suspect that a good many sporadic cases may have occurred in this country without being detected. In every case in which there is the slightest possibility that the disease may be typhus early and repeated Weil-Felix tests should be carried out. This test, though not infallible, is by far the most reliable method of diagnosis that is generally available. All large laboratories have facilities for carrying out the reaction, which in most cases becomes positive before the end of the first week, though it may, exceptionally, be delayed till the ninth or tenth day, and in rare cases it remains negative. The special feature of the reaction is that the titre of agglutination rises rapidly, usually reaching heights of 1/500 or over towards the end of the fever or in early convalescence; then it falls to a low level, but titres of 1/50 or 1/100 may persist for weeks or even months. A reliable strain of *Proteus* OX 19 is essential; this is best obtained from the Oxford Standards Laboratory. In Great Britain complete naked-eye agglutination in a dilution of 1/100 is strong evidence of typhus fever, but if repeated tests are made the maximum titre is seldom less than 1/500. If the titre remains constant throughout the illness and convalescence a false positive should be suspected even if the reaction is positive in dilutions of 1/200 or more. The reaction is also positive in rising and falling titre in flea-borne typhus, often also in tick-borne typhus, but so rarely in other diseases that mistakes are very unlikely to occur. Recent work in America suggests that agglutination tests in which suspensions of *R. prowazeki* made from yolk-sac cultures are used may prove to be more strictly specific than the Weil-Felix reaction. The same remark applies to complement-fixation tests in which similar cultures are employed as the antigen; but neither of these tests has yet come into general use.

When laboratory facilities are available an attempt should be made to isolate the virus by intraperitoneal inoculation into guinea-pigs of 2 to 5 c.cm. of blood taken from the patient at the height of the fever. Isolation of the virus is the one method by which an absolute diagnosis can be made.

When persons who have been inoculated against fevers of the typhoid group are attacked by typhus the Widal reaction is often positive in rising and falling titre, so that a mistaken diagnosis of typhoid has often been made by medical men who were not aware of this fallacy in the reaction. When inoculated persons are suspected of having typhoid and the blood cultures are negative the serum should be tested for typhus by the Weil-Felix reaction. The Wassermann reaction also may be positive during attacks of typhus.

For rapid bedside diagnosis a modification of the Weil-Felix reaction is sometimes used. A drop of the patient's serum is placed on a glass slide; to this is added a drop of suspension of *Proteus* OX 19 which has been tinted with methylene blue; the mixture is then tilted up and down for two or three minutes. In positive cases clumping is visible to the naked eye, but the standard test should be carried out in all reactors to find the titre of agglutination. Another modification has quite recently been described by German workers; this, called the "dry-blood agglutination test," has already proved its value as a means of making large-scale surveys of suspected populations. One or more droplets of each person's blood are allowed to dry on a labelled glass slide; suspensions of *Proteus* OX 19 are afterwards stirred in over the dried droplets; the slides are tilted up and down, and the results observed at intervals up to 10 minutes. In positive cases the clumping can easily be seen with a pocket lens. The standard test should be carried out in all positive cases.

Differential Diagnosis.—Typhus fever may simulate typhoid, meningitis, influenza, bronchitis, pneumonia, febrile catarrh, appendicitis, measles, small-pox, dengue and other fevers, especially during the first few days before appearance of the rash and development of agglutinins. Differentiation is seldom difficult if typhus is suspected and the usual laboratory tests are made. The simultaneous occurrence of other diseases, even in the same patient, is not infrequent during epidemics; in such cases serious mistakes may be made if a complete examination is not carried out. Flea-borne typhus can be distinguished from louse-borne typhus only by animal inoculation, though a knowledge of the conditions in which the infection has occurred will usually prevent difficulties from arising.

War Typhus

Typhus fever is far more common and far more deadly in the conditions resulting from war than in times of peace. Great movements of population often involve the transfer of susceptible persons to infected areas or of infected persons to places previously free from the disease. In either case the virus finds a virgin soil in which it flourishes. Overcrowding and lack of facilities for washing cause a great increase in the louse population and in the opportunities for migration of the insects from one host to another. Malnutrition causes lowering of resistance to infection. These factors lead to an acceleration in the rate of transmission from man to man and so to an increase in the virulence of the infection. Correspondingly, the incubation stage is shortened to an almost uniform period of about 8 days; mild attacks are less common and the death rate is higher. Even in areas in which the disease is smouldering in mild endemic form the risk to troops is great, because the soldiers are usually new-comers from non-infected places and so are highly susceptible.

Prevention

The best method of prevention is to eliminate louse infestation. This is a simple matter in normal conditions, but in war it may be very difficult or even impossible. The military medical authorities are fully alive to the importance of the problem; they have worked out an organization to deal with any conditions that can be foreseen. But no regulations, however perfect, can relieve the medical officers of the responsibility for constant vigilance; they must suspect typhus in every doubtful case of fever in areas of possible endemicity, and they must keep a careful watch on the health of the local inhabitants as well as of their own personnel. If the troops are stationed for any length of time in a suspected locality useful information can often be obtained from the local medical men; but undue reliance must not be placed on negative reports, because infection often smoulders in areas which appear to be free from the disease. The "dry-blood agglutination test" already mentioned deserves consideration as a rapid method of carrying out a survey in suspected localities: it has been used with success in German-occupied countries. The test can be carried out more rapidly and easily than the search for malaria parasites in blood films. Details of the method are given in the *Bulletin of War Medicine*, May, 1942, p. 397, and the *Tropical Diseases Bulletin*, June, 1942, p. 372.

The personnel engaged in typhus work of every kind should be young because of the great risk to life in the case of elderly persons. Preliminary inoculation should also be carried out if possible. In dealing with infected persons disinfection of the patient's skin by chemical antiseptics is desirable because of the risk of infection from louse faeces. Buxton suggests lathering the skin with a mixture of 1½ oz. of Jeyes' fluid,

1½ lb. of soft soap, and 10 gallons of water as a preliminary to bathing. For the same reason clothing and bedding should be disinfected by heat rather than disinfested with cyanide gas, which is of special value in the disinfestation of rooms and furniture. Special louse-proof clothing should be worn by persons exposed to risk: if this is not available a fair degree of protection is afforded by wearing rubber gloves and gum-boots into which the sleeves and trousers are tucked; the arms and legs should be smeared with camphorated oil made of 1 part of camphor to 9 parts of olive oil or liquid paraffin. The clothing must be changed frequently, and on each occasion a hot bath should be taken after preliminary lathering of the skin with a medicated soap of the type suggested by Buxton.

Medical men in Great Britain will find useful information about preventive measures in the Ministry of Health Memo. No. 252/Med. The general practitioner must always play a leading part in the detection of the first cases: he and the staff of our hospitals ought to keep a close look-out for suspicious cases. There is no need for an alarmist view of the risk of infection in this country; conditions here are very different from those prevailing in great epidemics, in which the danger to the medical and nursing personnel is very considerable. On the other hand the attitude of the medical profession should be one of uncompromising hostility to louse infestation, which is still far too widespread here. Educational propaganda directed towards arousing feelings of disgust and fear against lice must be combined with measures for the control of the insects.

Preventive Inoculation

Many kinds of protective vaccines have been tried; these fall into two main groups: (1) killed vaccines made from the rickettsiae of the disease; and (2) living vaccines containing the rickettsiae of flea-borne typhus, which have antigenic properties similar to those of louse-borne typhus. The living virus, attenuated in various ways, has been used on a large scale in French North Africa with apparent success: the vaccine acts by causing an unapparent or mild attack of the disease, but in some cases severe or even fatal attacks have resulted owing to an unexplained increase in virulence of the rickettsiae. There is a natural reluctance to use a virus whose constancy cannot be guaranteed, and, besides, there is some risk of introducing infection into places which are free from the disease.

Killed vaccines are free from risk; the first of these to be used on a large scale was Weigl's vaccine, which undoubtedly gives a considerable degree of protection. The preparation of each course of vaccine for one person involves inoculation per rectum of about a hundred lice, which have to be fed for some days on immunized persons and then dissected to extract their infected guts. This vaccine is clearly impracticable for everyday use. Cox has worked out a method which holds out promise of success; he grows cultures of *Rickettsia prowazeki* in the yolk sacs of developing chick embryos; suspensions of these cultures contain enormous numbers of rickettsiae, and large quantities of killed vaccine can be prepared at a small cost. The vaccine immunizes animals, but the crucial test of its effectiveness on human beings has not yet been completed. German workers have naturally been interested in Cox's vaccine; they are known to have taken up its preparation, and there are suggestions that it has already been found effective in reducing the severity of attacks which have occurred in inoculated persons. Killed rickettsial vaccines have not hitherto been found capable of producing complete immunity against virulent infection, but there is good evidence that they often lessen the risk to life.

The control of typhus fever in war conditions may be extremely difficult, as is shown by a report which appeared recently in a German medical journal. No fewer than 117 men engaged in guarding prisoner-of-war camps in one military district in Poland were attacked in November and December, 1941, in spite of delousing and orders to avoid close contact with the prisoners. The fatality rate was 35% in 82 of these persons who had not been vaccinated, but was *nil* in 35 who had been given one or more doses of a vaccine of unspecified type. In the same report there is a statement that 104 cases of a milder form of the disease were treated in the same hospital in the following two months. The patients were soldiers who had just returned from the eastern front; they had evidently become infected on the journey, but the virulence of the infection was low and there were no deaths.

Treatment

German physicians have been trying hard to find a curative drug, but although some of them have made great claims for sulphapyridine others are equally emphatic that it is useless except, possibly, in complications caused by organisms for which it has a specific action. The latest claim is for mepacrine hydrochloride (atebrin), preferably combined with pamaquin (plasmoquine); detailed evidence is promised, but in view of past disappointments it may be best to avoid undue optimism. No further reports have appeared about the use of intravenous solutions of chlorine which were claimed by Danielopolu to give almost miraculous results in the severest cases. Convalescent serum or direct transfusions of blood from convalescents may have some value if given early, but few observers are enthusiastic about their efficacy.

Good nursing and a light nutritious diet, rich in all the vitamins, form the basis of treatment. The free use of subcutaneous injections of normal saline or Ringer's solution is advocated by several physicians. Plenty of liquid should be given by the mouth. Chloral hydrate in doses of 15 to 40 gr. often relieves headache, joint pains, insomnia, and restlessness: if it fails lumbar puncture may be needed. Warm or even hot baths have their advocates. Complete rest, attention to the toilet of the mouth, and the prevention of bed-sores are other important points. Even in mild cases the patient must be kept in bed for at least a week after the temperature has fallen: in severe cases complete rest for periods up to three weeks or longer is essential because of the risk of sudden heart failure. For anaemia, iron and liver extract are needed.

In a disease which shows such extreme variations in the severity of different outbreaks, and even at different periods during the same outbreak, great caution is needed in estimating the effect of any special line of treatment. With any scheme of treatment the case mortality may range from *nil* to 30% or more.

The Other Fevers of the Typhus Group

As already stated, these are primarily diseases of lower animals, or "zootic" diseases, and are not capable of being naturally transmitted from man to man as is the case with louse-borne typhus, which is primarily a human, or "demic," disease. This general statement needs qualification in the case of flea-borne typhus: this disease is caused by a virus which is so closely related to *R. prowazeki* that many experts regard it as a variety of that organism rather than a distinct species. Some workers hold that the virus of flea-borne typhus, after being transmitted in the first instance from rat to man by the rat flea, may at times become capable of being transmitted from man to man by human lice. This is a disputed point, but even if the virus should occasionally be transmitted from man to man the resultant disease would automatically become louse-borne typhus and would have to be handled accordingly. Flea-borne typhus may possibly be the ancestor of the human disease, whose virus in that case would have originated as a modification of the rickettsiae of flea-borne typhus.

The other "animal" typhus fevers which are conveyed to man by ticks and mites, respectively, have never been known to be transmitted in natural conditions from man to man; cases of these diseases do not call for special precautions to prevent the spread of infection to contacts. On the other hand the possibility that flea-borne typhus may be transmissible by lice must be borne in mind; cases in louse-infested persons or communities should be handled on the same lines as louse-borne typhus, even though the risk of infection is doubtful or negligible in most of the affected localities.

Flea-borne Typhus

This is primarily a disease of rats, perhaps also of mice; it is ordinarily conveyed to man by the rat flea. The usual names of the disease are "murine typhus" and "endemic typhus," but neither name is appropriate: mite-borne typhus is also a murine disease, and both tick-borne and mite-borne typhus have an equal right to be called endemic diseases; even louse-borne

typhus often occurs in endemic form. The numerous other names that have been given to the disease are equally unsuitable. Flea-borne typhus was first recognized only a few years ago, but already it is known to be widely distributed in many parts of the world; the only condition essential for its occurrence is contact between human beings and infected rats which harbour fleas. This contact is most frequent in houses in urban areas, so that the disease is chiefly urban or, at any rate, domestic in type, as opposed to tick-borne and mite-borne typhus fevers, which are rural in their distribution.

The virus, called *Rickettsia mooseri*, is similar in its serological and immunological features to that of louse-borne typhus, but it causes a milder disease in man and a more serious disease in rats than *R. prowazeki*. Mention has already been made of the possibility that the virus may in exceptional conditions become modified so as to be transmissible by human lice from man to man. Some French observers believe that the virus can be conveyed by food which has been contaminated with the faeces or urine of infected rats.

The clinical features of flea-borne typhus are very similar to those of mild louse-borne typhus; the case-mortality rate is very low as a rule, but virulent forms of the disease have been reported from Mexico and elsewhere. The disease should be suspected, even in this country, when sporadic cases of typhus-like fever occur in persons who are free from louse infestation and who have not been in contact with cases of louse-borne typhus. In countries where tick-borne or mite-borne typhus occurs there is often a difficulty in differential diagnosis, but knowledge of the epidemiological conditions, and laboratory tests if available, will usually be of great help. The rising and falling titre of agglutination to *Proteus* OX 19 is the same as in louse-borne typhus, and the reaction to *Proteus* OXK is negative or weak. Prevention is by rat destruction on the same lines as in plague.

Fevers of the Typhus Group

Epidemic Typhus Fever (preferably called "Demic" Typhus Fever). A human disease, transmitted from man to man by human lice. Associated with louse infestation, poverty, famine, and overcrowding.	The Non-epidemic Typhus Fevers (preferably called "Zootic" Typhus Fevers). Primarily diseases of lower animals, transmitted secondarily to man by fleas, ticks, or mites. Associated with life in the open country and forests or with contact with rats, dogs, etc. "Place" diseases and usually sporadic.		
Names .. .. .. Louse typhus	Flea typhus	Tick typhus	Mite typhus
Synonyms .. .. .. Typhus fever, typhus exanthematicus, etc.	Murine typhus, endemic typhus, shop or urban tropical typhus	Rocky Mountain spotted fever, boutonneuse fever, tick-bite fever, etc.	Japanese river fever, tsutsugamushi, scrub tropical typhus, etc.
Virus .. .. .. *Rickettsia prowazeki*	*Rickettsia mooseri*	*Rickettsia rickettsi*	*Rickettsia tsutsugamushi*
Vectors .. .. .. Human lice	Rat fleas	Various ticks	Larval mites
Reservoirs of infection .. Man only known	Rats and mice	Various rodents; dogs and other animals suspected	Rats
Agglutination against:			
Proteus OX 19 .. .. ++ to ++++	++ to +++	− to +++	− to +
,, OX 2 .. .. ++ to +++	++ to +++	− to ++	− to +
,, OXK .. .. − to +	− to +	− to ++	++ to ++++
Rash .. .. .. Small macules, first on sides of chest, spreading over trunk, arms, and legs. Seldom on palms, soles, and face	As in louse typhus, but often inconspicuous or absent	Often conspicuous; may be nodular. Common on palms, soles, and face	Macular; often on face, rare on palms and soles
Local sore and lymphadenitis: Absent	Absent	Usually absent, but common in some localities, especially North and South Africa	Usually present in Japanese cases: absent or uncommon in Malayan and Dutch East Indian cases
Case mortality .. .. 5 to 50%	0 to 4% as a rule	1 to 70%	1 to 60%
Cross-immunity in animals: Strong against flea typhus, *nil* or weak against tick or mite typhus	Strong against louse typhus, *nil* or weak against tick or mite typhus	Only slight against other forms of typhus	Only slight against other forms of typhus
Distribution .. .. Cosmopolitan, but not common in the Tropics	World-wide, common in the Tropics	Many localities in America, Europe, Africa, and Asia. Not common near the Equator except at high altitudes	Far Eastern tropical and subtropical countries

Tick-borne Typhus

This disease occurs in many areas in North and South America, Asia, North and South Africa, and Southern Europe. Cases occur chiefly in temperate and subtropical climates during the season of activity of the vector ticks. The chief risk of infection is from bites by ticks which have been infected by animals in the open country or forests of affected areas, so that the disease is rare in urban communities. The handling of ticks which infest dogs has been regarded as the source of infection in some cases. Certain areas in the Rocky Mountains are the home of the classical form of the disease. The virulence of the infection is extremely variable; in some localities it is so great that the case-mortality rate is 70%; in others it is only 5%.

The onset and decline of the fever are usually more gradual than in louse-borne typhus; the rash is maculo-papular and usually extends to the palms, soles, and face. In some localities a local sore with lymphangitis often occurs at the site of the tick-bite. The agglutination response to *Proteus* OX 19 and OXK is very variable, ranging in each case from negative to strongly positive. Complement-fixation tests or agglutination tests in which the specific rickettsiae are employed may prove to be reliable methods of differential diagnosis from the other typhus fevers.

Prevention is by frequent examination of the body for ticks or by wearing tick-proof clothing when living or travelling in affected localities. If the ticks are removed within an hour or two after attaching themselves there is little risk of infection. A drop of tincture of iodine or kerosene should be applied to each tick before it is removed. Killed vaccines made from suspensions of laboratory-infected ticks have been used with success, and now yolk-sac cultures of the rickettsiae are being tried.

Mite-borne Typhus

This disease occurs chiefly in the Far East; cases have also been reported from India. The disease is rural in distribution; the causal rickettsiae are conveyed from infected rats by larval mites, which are microscopic in size. Japan is the home of the historical form of the disease; in that country a sore with lymphangitis is said to be uniformly present at the site of the infecting bite, but in other affected countries this is often absent.

A strongly positive agglutination reaction to *Proteus* OXK with a negative or weak reaction to *Proteus* OX 19 is highly suggestive of mite typhus: in other respects the disease has a general resemblance to tick typhus. The virulence of the infection shows the same variability according to locality as is seen in tick typhus.

References.—The recent contributions to knowledge of the typhus fevers are so numerous that detailed references to the literature cannot be given in the space available. Abstracts of the important articles appear in the *Tropical Diseases Bulletin* at frequent intervals.

A case of insulin resistance has recently been described by E. Lozinski and L. I. Frohlich (*Canad. med. Ass. J.*, 1942, **46**, 62) in which 3,000 to 4,000 units of insulin daily were required to prevent hyperglycaemia, acidosis, and coma. Experiment failed to demonstrate any anti-insulin substance in the patient's serum. The pituitary gland was thereupon irradiated with *x* rays. One month after leaving hospital (i.e., 3½ months after the beginning of irradiation) the required insulin dosage was down to 500 units. Approximately 16 months after irradiation fasting blood sugar was 108 mg. per 100 c.cm. on a dosage of 40 units daily of zinc-protamine-insulin.

THOMAS MANN ON FREUD

BY

Sir WALTER LANGDON-BROWN, M.D.

Shortly after the last war Thomas Mann, then undoubtedly the greatest literary influence in Germany, produced a striking essay entitled *Freud's Position in the History of Modern Thought*. It does not appear to have excited much interest at the time, but it is so prophetic in tone, so penetrating a study of German mentality, and so appreciative of Freud's value as physician to the body politic, that his essay gains fresh interest at the present juncture. He starts by adopting Nietzsche's view that the later part of the 19th century was characterized by two leading *motifs*—reaction masquerading as progress, and subservience of reason to emotion. Though not confined to Germany they were specially potent there. He elaborates this by maintaining under the first heading that reformations by their very nature may have little to do with progress, since they tend to re-establish the old in an extremely conservative sense, and that at a time when the new is already known, while the second arouses sympathy with the chthonic and daemonic, with night and death—in short, with a primeval and earth-born religion. This recognition of the feeble control exerted by the reason and intellect, and of their incapacity to condition life, has led to scorn being poured on reason as an unfruitful illusion, and to the reinstatement of the irrational and instinctive. When reaction disguises itself as revolution, it succeeds best with youth, which not being fortified by experience against such tricks can be beguiled into accepting the most outworn devices as promising novelties. The revolutionary freshness of youth has impressed upon it the "principle of mindless nature, the folk soul, hatred, war . . . the great retreat dressed out in the uniform of the advance guard. . . . Is youth really going to fall victim to this crude abuse of the new knowledge? . . . We are no longer strangers to the disheartening sight of youthful bodies in gay quickstep, songs arising from young life, arms flung in a Roman salute, wasting the fine flight of their youth upon hoary ideas." Since he wrote those words history has answered his questions. As Kerr Clarkson expressed it in his *Europe in Eclipse*, Hitler's "Youth Movement was his method of harnessing the challenging demands of puberty to the service of the State," while Howard Smith in his vivid *Last Train from Berlin* concluded from study on the spot that the Nazi "Ship of State has ridden the waves, not of the future, but of the blackest past." Hitler has completed what Wagner began—the exploitation of the myth.

The recent arrest of the veteran physiologist Prof. Lapicque in Paris and the suppression of the *Presse Médicale* are typical of much. Science, literature, and art are to be tolerated only in so far as they are within the comprehension of the autocrat. Any higher values are met with the retort of Goethe's Mephistopheles—"I am the spirit that denies."

Indeed we must admit that a reactionary element is not uncommon in revolutions. The lictors' rods are suitable symbols for Fascism, for the Romans have been the most persistent *laudatores temporis acti* in all history, even in the moments of their greatest conquests. The renaissance of Irish nationalism gained force from the Celtic twilight, represented poetically by W. B. Yeats and pictorially by his brother.

Thomas Mann sees in Freud's technique a method designed to expose reactionary manœuvres. "Long ago, and certainly to the surprise of its physician-founder, it outgrew the domain of medicine and became a world-wide movement that has penetrated into all possible fields of intellect and science. . . . But being by origin a technique of healing, it has preserved in the broader intellectual fields its physicianly character, its human and ethical urge . . . which gives it a peculiar status within the scientific movement of our time." While Freud recognizes the power of impulse over the mind, he is far from giving way to its superiority, for, as he himself phrased it, "The voice of the intellect is low, but it rests not until it gets a hearing. In the end after countless repulses it gets one after all." When Freud describes the impulses to death and destruction as the effort of the living to relax the strain by returning to lifelessness, and then crosses this backward urge with the "actual life impulse"—namely, sex—with which all striving towards evolution is bound up, he gives to sexuality a revolutionary and intellectual significance such as had never before been ascribed to it. Extending his views from the individual to the body politic, Freud compares the unstable equilibrium of civilization to the condition in which a neurotic patient, without the will to recovery, comes to terms with his symptoms. This application of the idea of repression, leading to transformation into the neurotic symptom, to the disease of nations to-day I ventured to emphasize in my Maudsley Lecture in 1936. The modern fanatical outburst of nationalism may be regarded as the pathological outcome of repressing the evolutionary trend towards internationalism.

Mann thinks deeply, though perhaps at times almost too subtly, and not all will agree with him; nevertheless I feel that his diagnosis here is correct, and it is to be hoped that his anticipations of the therapeutic benefits to be derived from Freudian doctrines may be justified. He certainly concludes on an optimistic note: "The goal of psycho-analysis is a new life order, earned by effort, resting on freedom and security, obtained through self-knowledge. . . . It deals with the night, the dream, impulse, and the pre-rational . . . but it is far from being a tool of the obscurantist, fanatical, backwardly directed spirit. . . . It is, in my sincere conviction, one of the great foundation stones of a structure of the future which shall be the dwelling-place of a free and conscious humanity." Yet one feels impelled to add Crichton-Miller's observation as a *caveat*: "To Freud there are but two goals in life—libidinal satisfaction and a return to the inanimate. Jung on the other hand seems to see in human behaviour a manifold purpose which embraces realization of individual potentialities, mastery over circumstances and progressive evolution of the race."

TUBERCULOSIS IN WARTIME

We print below a summary of the main findings and recommendations of the M.R.C. Committee on Tuberculosis in Wartime. The following are members of the committee: Viscount Dawson of Penn (chairman), T. Stenner Evans, Prof. Major Greenwood, F. R. G. Heaf, G. Gregory Kayne, Sir Alexander Russell, Miss May Smith, Norman F. Smith, Wing-Cdr. R. R. Trail, Prof. G. S. Wilson, and P. D'Arcy Hart (Secretary). A leading article on this report appears at p. 429.

Summary of Findings

1. There has been a real increase in deaths from tuberculosis since the beginning of the war.

2. All age groups have been involved to some extent in the increase, and the participants up to the present have not been predominantly young women—as seemed likely early in the war—but include, particularly recently, children and the older male age groups as well.

3. Although there has been a slackening in the increase of tuberculosis mortality in the second year of the war—e.g., in young adult females—the position is still unfavourable in relation to the pre-war figures.

4. In view of the similar, though only temporary, slackening in the rise of tuberculosis at a corresponding time in the last war, together with what is known of the course of tuberculosis, we must be prepared for a further increase as hostilities continue.

5. A disquieting feature of the present position is the increased mortality of children from tuberculous meningitis. Measures have been indicated which should reduce the deaths from bovine infection. To reduce human infection it is necessary not only to take special measures with children, but also to control pulmonary disease in the adult. The suggestions which have been made for the early detection, segregation, and adequate treatment of the tuberculous adult should have an indirect effect in reducing infection among children.

Summary of Recommendations

Mass Radiography.—1. Subject to limitations of apparatus, the controlled use of mass radiography before, or as soon as possible after, employment should be extended, especially (*a*) in the Services, (*b*) among men and particularly women entering the war industries, and (*c*) among those taking up certain other occupations.

2. A single mass *x*-ray examination should be carried out, where practicable, upon those already employed in certain industries—e.g., munition factories.

3. As an extension of the preceding, but probably practicable to a much less extent in wartime, *x*-ray examinations should be repeated at regular intervals upon certain groups of the population, including (*a*) employees in factories which contain large numbers of young adults, (*b*) nurses and medical students, and (*c*) merchant seamen.

4. Where speed and cost dictate, the miniature method is the one of choice for mass radiography. In certain circumstances it may be practicable to make use of existing full-size apparatus.

Institutional Accommodation.—5. Accommodation for institutional treatment of tuberculosis is urgently required. A good deal is now available, but cannot be used because of lack of nursing and domestic staffs. Until these staffing problems are solved, no advance can be made in institutional control of the disease.

Financial Provision.—6. In view of the special character of the disease and the prolonged treatment usually required, special financial provision greater than that obtainable under the N.H.I. scheme should be made for persons with tuberculosis.

Rehabilitation.—7. Rehabilitation should be considered an essential part of the treatment of tuberculous persons, and arrangements should be made for the gradual return to industry of such patients on a basis of part-time or modified work. During the period of rehabilitation a supplement to wages should be provided, in order that an adequate standard of living can be maintained by the patient and his family.

Examination of Contacts.—8. The examination of all home contacts must be energetically pursued, a first examination being the chief requirement. The re-examination of children under 5 years of age, and of young adults, is highly desirable.

Examination in Special Cases.—9. *X*-ray examination, and re-examination at intervals, should be undertaken for all cases of pleurisy and erythema nodosum in young people, whether institutional treatment has been given or not.

Mental Hospitals.—10. The special conditions prevailing in mental hospitals make it desirable that an effort should be made as soon as practicable to *x*-ray periodically all residents of such institutions.

General Working Conditions.—11. It is of the first importance that continued watchfulness should be maintained upon the working conditions of young employees, particularly in regard to hours of work, transport difficulties, rest periods, factory canteens, and hostel arrangements, and their relation to sickness absence.

Milk.—12. The pasteurization of milk should be extended throughout the country, and, where this is not practicable, all milk consumed by children should be boiled, or dried milk should be provided.

Propaganda.—13. The implementing of these recommendations should be accompanied by information and propaganda both to the medical profession and to the general public.

SURGICAL HONOUR FOR LORD NUFFIELD

A ceremony was held at the Royal College of Surgeons of England on Sept. 30, when Lord Nuffield received at the hands of the President, Sir Alfred Webb-Johnson, the Honorary Medal of the College, a distinction instituted in 1802 for "liberal acts or distinguished labours, researches, and discoveries, eminently conducive to the improvement of natural knowledge and of the healing art." This was the eighteenth award, and earlier recipients had been Lord Lister, Sir James Paget, and Sir Richard Owen. The company supporting the President and the Council in the College building at Lincoln's Inn Fields included Mrs. Churchill, representing the Prime Minister in his capacity as First Lord of the Treasury and Trustee of the Hunterian Collection; Mr. Ernest Brown, Minister of Health, and Miss Horsbrugh, Parliamentary Secretary to the Ministry; Sir Charles Wilson, President of the Royal College of Physicians; Dr. Daniel O'Brien of the Rockefeller Institute; Sir Farquhar Buzzard, Regius Professor of Medicine at Oxford; Mr. H. L. Eason, President of the General Medical Council; and Sir Stanley Woodwark, Master of the Society of Apothecaries.

The President welcomed the distinguished company whom the prestige of the Royal College of Surgeons and the romance of this occasion had brought together. The primary duties of this corporate body were the same to-day as those of their fathers of old—to strive for the improvement of the science and art of surgery, and to ensure that those who practised it were qualified to do so. It was essential that it should continue to be an arbiter of surgery and a centre of independent authority. While keeping in the van of progress it had to preserve the broad bases on which the whole edifice of biological knowledge was built, thus maintaining it as a great staff college of learning. Besides being heirs to these responsibilities and traditions the Council were trustees of several distinctions and awards; one of these was the Honorary Medal. Lord Nuffield's youthful ambition to be a surgeon was not to be fulfilled, but they had invited him to the headquarters of British Surgery that day to receive their most exclusive emblem of merit in recognition of his greatness in generosity and in wisdom.

The Senior Vice-President, Surgeon Rear-Admiral G. Gordon-Taylor, presenting Lord Nuffield for the award, said that it was not only the dazzling magnitude of his gifts to medicine but also the manner and the direction of his giving that the College wished to honour—the thought and the deliberation that had guided each beneficent act. The whole realm of the healing art had attracted Lord Nuffield's interest and had come within the orbit of his wise munificence.

Lord Nuffield, in a brief acknowledgment of the medal, said that nothing he had ever received had given him greater pleasure. What he had done for medicine and surgery was only what he thought he should have done, and it would be his highest ambition and desire in the future, as in the past, to help those less fortunately placed than himself, and to encourage others to do so.

Mr. Ernest Brown, at the close of the ceremony, spoke in praise of Lord Nuffield's gifts, saying that too often givers who lavished money on expensive buildings showed little concern for the men and women who were to work in them. Lord Nuffield never made that mistake. Of all his gifts the Minister would like to praise him most for two things—the establishment of the Professorships and Readerships at Oxford, and the foundation of Chairs of Social Medicine and of Child Health.

AWARD FOR GALLANTRY

Dr. ROBERT HAMILTON MOYES, deputy medical officer of health, Kingston-upon-Hull, has been appointed an M.B.E. (Civil Division). The citation in the *London Gazette* reads:

"Throughout enemy air raids Dr. Moyes has played an important part in succouring wounded and trapped people and in encouraging the personnel of civil defence services. During one raid he rendered assistance to many victims and gave morphine to ease the sufferings of those who could not be immediately released. This necessitated crawling into tunnels at a time when debris was still falling, but he carried on regardless of personal risk and displayed a high degree of courage. His initiative and skill undoubtedly saved several lives and brought comfort to the suffering. Dr. Moyes has been medical officer at many incidents and he has always maintained a high standard of professional skill and courage. He has worked untiringly for the injured victims of enemy air attack and his calm demeanour has been an inspiration."

A conference of the Nutrition Society will start at 11 a.m. at the London School of Hygiene, Keppel Street, London, W.C.1, on Saturday, Oct. 17, to discuss "Trace Elements in Relation to Health." Papers will be read by Dr. H. H. Green (Significance of Trace Elements in Relation to Diseases of Plants and Animals), Dr. R. L. Mitchell (Distribution of Trace Elements in Soils and Grasses), Prof. D. Keilin and Dr. T. Mann (Copper, Zinc, and other Trace Elements in Relation to Physiological Function and Enzyme Systems), Prof. T. Dalling (Enzootic Ataxia or "Swayback" of Lambs in England in Relation to Copper Feeding of Ewes during Pregnancy), Sir Charles Martin (Cobalt and Other Trace Elements in Relation to Disease in Australasia), Dr. W. Lyle Stewart (Sheep "Pining" in Britain), Dr. M. M. Murray, Dr. D. C. Wilson, and Dr. F. H. Kemp (Fluorine in Human Nutrition), Mr. F. Blakemore (Industrial Fluorosis of Animals in England), Mr. W. S. Ferguson ("Teart" of Somerset; a Molybdenosis of Farm Animals), Dr. R. A. McCance and Miss E. M. Widdowson (Absorption and Excretion of Trace Elements). Further details of the Nutrition Society can be had from the Hon. Secretary, Dr. Leslie Harris, Dunn Nutritional Laboratory, Cambridge.

Correspondence

Dysentery and Diarrhoea in Wartime

Sir,—Sir Philip Manson-Bahr's paper concluded in your issue of Sept. 26 (p. 374) will be helpful to many medical officers in the Services and elsewhere. But in recommending doses of 50 to 80 c.cm. of serum in severe cases of Shiga dysentery he is not, I think, taking into account the remarkable progress achieved during the past few years in refining and standardizing these sera. The product issued to the Army contains 50,000 international units of antitoxin in a volume of less than 10 c.cm.: and 50,000 to 100,000 units is considered sufficient as an initial dose, even in fulminating toxic cases, if given intravenously. Intravenous injection, as Sir Philip will agree, is preferable to intramuscular injection as a means of securing rapid circulation of antitoxin; and, thanks to the use of proteolytic enzymes in preparing the serum, the risk of anaphylaxis to which he refers is now so small that it need no longer deter us from using the most effective route.—I am, etc.,

War Office, S.W.1. L. T. Poole,
Major-General, Director of Pathology.

Post-mortem Facilities for All

Sir,—Prof. G. Grey Turner's letter (Sept. 26, p. 376) on post-mortem facilities for all seems to be based on a misunderstanding. He refers to post-mortems in cases connected with workmen's compensation, but in all such cases where an accident has occurred it is the duty of the doctor to notify the coroner. A complete necropsy will then be ordered. And, again, when persons have died after discharge from hospital and where the cause of death is not known, the doctor should inform the coroner so that a post mortem can settle the question.

In other words, the essentials for which Prof. Grey Turner craves are already in existence and in action; but, admittedly, the "fully equipped institutes" do not exist. If they did, they would be but rarely required because in the great majority of the cases to which Prof. Turner refers the simple methods of the morbid anatomist (and histologist) suffice; on the rare occasions when they do not, the hospital laboratory is available for complicated investigations.—I am, etc.,

London, W.1. A. Piney.

Antiseptic Technique

Sir,—We would like to associate ourselves with Prof. R. J. Willan's plea for an antiseptic technique in surgery (Sept. 5, p. 291). His letter has prompted us to give an account of our own experience. After discussions last February, we decided to try to eliminate rubber wastage by adopting the following technique for scrubbing-up in the theatre, and have used it exclusively ever since.

1. Ordinary toilet of nails, etc.; wash hands and forearms and dry.
2. Put on non-sterile rubber gloves previously inspected and patched if necessary. The gloves should be well pulled on to obviate wrinkles and the risk of resultant unwashed areas.
3. Wash gloved hands in soap and water for three minutes.
4. Put on sterile gown and fasten the sleeves at the wrists over the gloves with small rubber bands previously sterilized in 1 in 50 lysol. The gown sleeves should be long to avoid exposing areas of bare wrist.
5. Steep hands in 1 in 50 lysol for two minutes.
6. Rinse in saline.

Using this technique more than 2,000 operations have been performed in the past eight months, of which 800 were major operations. This number includes some 700 abdominal cases of various kinds, but does not include 121 operative obstetric cases, for which the above technique has also been used exclusively. No difference in the wound-healing and post-operative progress has been observed between this technique and the usual aseptic method using dry-heat-sterilized gloves.

Our justification for bringing this procedure to your notice is: (*a*) That it prevents the wastage of rubber gloves caused by heat sterilization. This saving of gloves has been so marked that consumption has been reduced to one-eighth of the previous quantity. In addition, the gloves fit as perfectly after five weeks' use as when new, the only reason for their final abandonment being the impracticability of patching them further. (*b*) The technique is applicable should war conditions abolish the sterilization amenities of a modern theatre.

We agree with Prof. Willan that operations can be performed successfully with an antiseptic technique and no gloves at all, but gloves afford a necessary protection to the surgeon against infection.

Our experience gives us complete confidence in recommending this method to other surgeons, and we regard the marked saving of rubber as a definite war economy.—We are, etc.,

N. S. Craig.
R. L. Dodds.
N. C. Tanner.
London, S.W.12. H. K. Vernon.

Classification of Nerve Injuries

Sir,—It may cheer Dr. Russell Brain to know that I have received three other letters of complaint about the terms recently introduced for the three types of nerve injury. All the correspondents have suggested others—some old, some new—but with one partial exception the only thing common to their terms is that they are not so un-English as "neurotmesis," "axonotmesis," and "neurapraxia." In my opinion none of them (except, perhaps, "division") is satisfactory. There has, in fact, never been agreement on the nomenclature of nerve injuries, although I believe that in their own minds most neurologists are fairly clear about the three main types. But I cannot help being a little doubtful about Dr. Russell Brain. In his excellent textbook of neurology (1940) he draws no clear distinction between them, and in referring to the second type as "division of axis cylinders without division of the nerve sheath" (this was not my description) he has failed completely to appreciate the importance of the survival of the more intimate supporting structures of the nerve. Preservation of the sheath alone is of little value so far as spontaneous regeneration (a constant feature of axonotmesis) is concerned, as we have demonstrated histologically. And he does not use his own or any other terms in his book.

It is necessary, first, to ask whether he wishes the terms, his or mine, to be used in the widest possible sense or to refer only to lesions produced by certain kinds of injury. It seems to me that the more comprehensive a term the greater its value. Secondly, the term should be more closely related to effect than cause, and the effect should, where possible, be indicated in such a way that the reader is made aware of the consequent anatomical and functional disturbances. I do not suggest for a moment that this should be a universal rule, but it applies with great force to most local lesions and especially to nerve injuries.

Let us consider Dr. Russell Brain's *contusion*, "injury by blow without breaking the skin" (*O.E.D.*). This is much more a description of the cause rather than the effect, but, as the Table shows, axonotmesis may be produced in at least eight

Neurotmesis	Axonotmesis	Neurapraxia
1. Open wounds	1. Open wounds	1. Open wounds
2. Direct blunt injuries	2. Direct blunt injuries	2. Direct blunt injuries
3. Traction	3. Traction	3. Traction
	4. Compression, sudden or prolonged	4. Compression, sudden or intermittent
	5. Friction (? a combination of 3 and 4 as in traumatic ulnar neuritis)	
	6. Freezing	5. Freezing
4. Local chemical poisoning	7. Local chemical poisoning (e.g., injection of sulphapyridine)	6. Certain drugs
	8. Experimental crushing	7. Experimental compression

In other words, there are more ways of producing {neurotmesis / axonotmesis / neurapraxia} than by {dividing / contusing a nerve / concussing}

different ways, and in each the result is the same. The word "axonotmesis" indicates that the axons have been divided; a little thought brings one to the conclusion that the disturbance

of function must be exactly the same as if the whole nerve had been divided (hence the importance of the cognate neurotmesis); and a little experience reveals the striking difference between the two when recovery occurs—namely, that axonotmesis, being predominantly a simple break in the axons, is capable of spontaneous regeneration, whereas neurotmesis is not. "Contusion" is, therefore, a limited, vague, and thoroughly unsatisfactory term.

And so is "concussion." How does "a violent shaking" (*O.E.D.*) fit the six or seven known causes (see Table) of neurapraxia? I admit that "neurapraxia" is a little unsatisfactory, but not for the reason that Dr. Russell Brain gives. The difficulty is that no constant anatomical lesion has yet been demonstrated, and hence it cannot be described. But we do know that the nerve (or certain fibres in it) stop working, and this is precisely what "neurapraxia" means. He is disturbed because "apraxia" is already used in medicine in another connexion. Apparently he takes to himself the privilege not simply of copyrighting a word (which is legitimate and is called definition) but forbidding its use as part of a compound. Why not command the anatomists to abandon "aponeurosis" because "neurosis" "has for many years been the name of a psychic disturbance at the highest level"?

I am not fond of new words, and I am especially shy of the strange terms, many of them of Greek origin, that have come into medicine during recent years, more particularly in neurology. But here there was a real need, and I think Prof. Henry Cohen has made a successful attempt to meet it. This is why my colleagues and I use these words. The fate of them will not be decided by their inventor, Dr. Russell Brain, or myself. If they express something that is true, or reasonably near the truth, and if they fill what is clearly an awkward gap in neurological nomenclature they will probably survive. If they are found deficient or perhaps just too difficult to pronounce then they will almost certainly perish.—I am, etc.,

Headington, Oxford. H. J. Seddon.

Treatment of Haemophilia

Sir,—The paper by Messrs. C. L. Endicott, J. H. Mitchell, and G. Qvist (July 11, p. 34), describing a fatal case of bleeding in a haemophiliac, has given rise to some subsequent correspondence. While we agree with Prof. G. Grey Turner (Aug. 29, p. 258) that suitable local measures should be employed when the site of bleeding is accessible, it would appear, as Dr. R. G. Macfarlane and Prof. L. J. Witts have admirably pointed out (Aug. 1, p. 140), that the value of *general* therapy in controlling bleeding in haemophilia is still not sufficiently appreciated. From a study of 6 haemophiliacs at the Hospital for Sick Children, Great Ormond Street, London, we demonstrated (*British Medical Journal*, June 29, 1929) that the only general treatment of any value in haemophilia is the intravenous administration of whole blood or plasma. We showed that this resulted in an immediate fall in the coagulation time to a normal figure, and while the figure rose steadily to its original level after about one week, the temporary improvement was sufficient to act as a most valuable haemostatic, and in our cases resulted in an immediate cessation of bleeding. As Dr. Macfarlane and Prof. Witts mentioned, other workers have confirmed these findings.

At the time our paper was published dried plasma was not readily available, but there is every reason to hope that it would be equally as efficacious as liquid plasma. At that time we approached a well-known firm to try to get human plasma in ampoule form, but we were told that owing to the rarity of haemophilia the demand would not make this possible. Now that blood and plasma are so readily available the difficulty has been largely overcome. We feel, however, that the impression may still be held that blood transfusion in haemophilia is simply trying to maintain a blood level which will continue to fall unless something further is done. We would therefore again point out that blood and plasma act in haemophilia as substitution therapy, supplying the missing factor, and analogous, therefore, to insulin in diabetes or thyroid in the cretin, except that in haemophilia the exact nature of the defect has not as yet been fully established.—We are, etc.,

London. W. W. Payne.
Dublin. R. E. Steen.

Breast-feeding

Sir,—Prof. Charles McNeil in his interesting article on this subject (Sept. 5, p. 271) says in conclusion: "Every doctor and nurse who has the responsibility of advising and assisting mothers in breast-feeding ought to urge its continuation wherever possible and as long as possible, and give their best thought and effort to overcome any difficulties that may arise." The question at once prompted to my mind is: "How are these difficulties to be overcome?"

So far as I can see the most difficult and dangerous period for the mother and child in this effort to breast-feed is the four weeks following the return home from the nursing home or after the midwife and/or the doctor have ceased visiting the house. The mother, who has received scanty grounding in the art of breast-feeding during the short preceding fortnight, is now left to her own devices, surrounded by various members of her family and her omniscient neighbours. It may be that she has been fortunate, that she has good feeding breasts, plenty of milk, and a healthy, normal-sized, tractable, good sucking baby. Under these conditions she usually requires and seeks no advice and may be seen neither at the clinic nor by her own doctor until the first disturbance of health demands advice.

The mother may, however, fall into the category of those who have no wish to feed their babies, upon whom it is not worth wasting time, or of those who find difficulties in the task but who, rightly advised, will succeed in overcoming them. Very frequently she fails because: (1) she is overridden by her friends' advice, or (2) because she finds bottle-feeding a way of escape from what appears, with insufficient practical help, an impossible task with its attendant anxiety state. The help she requires in this difficult period must be given frequently, unhurriedly, and in the home, and it is most likely that before the problem is solved there must be opportunity for a number of test feeds. It is my opinion that such help, in the present state of things, is not and most likely cannot be given by the infant welfare clinics or the health visitors. It cannot be given by the former, because over an anxious period weekly visits are useless, for in the meantime the fight may be lost and submission made to bottle-feeding. It cannot be given by the latter, because most of their time is taken up by shepherding the legions of babies at overcrowded clinics whose mothers have come (*a*) to weigh the baby, (*b*) to get artificial foods cheaply, or (*c*) to spend a pleasantly gossipy hour. Each of these babies occupies the time in turn of the caretaker, the voluntary worker, one or two health visitors, and the doctor. Individual attention is impossible and often not encouraged by those in authority, and the criterion of success is numbers. Even if the health visitor does find time and is allowed to tear herself away from the clinic to do a useful bit of follow-up work at the home of a difficult case, the length or frequency of the visits is often insufficient to be really effective.

Could not a great deal of what appears to be wastage of time and effort at the clinics be given to home visitation in the early days of difficult cases, or could not one health visitor at least be available each day at the public health department, to whom harassed and anxious mothers could come for advice if they have no doctor to whom they could turn, or if the economic factor prevents their doing so? Some babies can feed from any mother and some mothers can feed any baby. Let all such visit the clinic less often and so allow those responsible to concentrate on the doubtful difficult cases.

It may be that in some areas this problem has been tackled and some such arrangements have been made. If so, I apologize for any apparent generalizing aspersions I may have made, and ask any who have solved this problem to give others who have not the benefit of their knowledge and experience.—I am, etc.,

London, S.W. E. Gerard Housden.

Sir,—With regard to the establishment of natural feeding, it has been my experience in many different areas that those mothers who are attended by the district midwives, although from much poorer and less well-fed homes, show far greater success than those who are admitted to hospital. I am certain that this is due to the misguided interference on the part of their medical advisers. Expectant mothers should be taught

that pregnancy, childbirth, and lactation are normal episodes in a woman's life, and should be taken in her stride. So much stress is often laid on preparation for breast-feeding that the mother comes to think of it as something difficult to achieve and literally "worries the milk away." Another unfortunate mistake is that of the maternity hospital sister who is over-anxious to get the baby's weight up to a prearranged standard before its discharge. She frequently tells the mother how much it has gained at every feed, and is far too ready with the complementary feed. It cannot be too strongly stressed that, short of actual starvation, the baby should be left alone in its earliest days (except for extra water); as it becomes hungrier it will suckle more vigorously and stimulate the breast. —I am, etc.,

L. M. M. Beadnell,
Assistant Medical Officer, Maternity and Child Welfare, Barking.

Fair Distribution of Milk

Sir,—Last autumn all general practitioners were asked to assist the Ministry of Food in its endeavour to direct the available supplies of liquid milk to those needing it most. On the advice of the Special Diets Advisory Committee, the Medical Research Council, and the B.M.A., arrangements were then made whereby doctors could prescribe quantities up to 2 pints a day for certain specified types of invalids. In a letter I received on this subject from the Ministry of Food last autumn I was informed that if the maximum allowance be prescribed in every case of illness qualifying for priority milk the total amount consumed in this way would seriously curtail the supply available for able-bodied adults, and even prejudice the quantities needed by mothers, children, and adolescents.

The Ministry of Food asked for and readily obtained our co-operation in maintaining a proper balance between the claims of the healthy and the sick upon our milk supply. However, a new form of milk certificate has now been issued (R.G. 50) and been in use for at least a month, and we are now not asked to prescribe any definite quantity of milk for our invalid patients. The question of quantity is governed entirely by the class or category in which the patient is placed. Thus, a patient suffering from an acute form of gastric ulcer, confined to bed, and living almost entirely on milk, receives a certificate that he should be granted "such supplies as are at present authorized." In this case he is placed quite rightly in Class I of the schedule of diseases, and the local food control office will give him automatically an authority to obtain the maximum of 2 pints a day. However, a patient suffering from a chronic form of the same disease, not confined to bed, and able to take a varied diet, yet needing extra milk, receives under the regulations exactly the same certificate, since he has to be placed in the same class and consequently obtains an authority for the maximum quantity. As the need for milk in the acute and chronic cases is very different, it would seem that unless something is done to amend speedily the present form of certificate, the available supplies will not be directed fairly to those needing it most.—I am, etc.,

J. D. Borham,
Medical Officer of Health, Southwold.

Rickets on the Increase

Sir,—In recent months during the clinic sessions of an extremely widespread and well-supported orthopaedic service I have been convinced that there is a definite increase in the evidences of rickets. This has been thoroughly investigated and the results are as follows: (1) there is a 50% increase in the number of rachitic patients seen; (2) a 15% increase in the number of cases of acute rickets: these have been of a much more severe type than formerly; (3) very many cases are in babies of 4 to 8 months of age. In the majority of these cases vitamin therapy has been used, and with regard to the babies, all of whom were breast-fed, the mothers had not been taking vitamin D.

May I submit my conclusions; they are: (1) the present standard of dosage of vitamin D is inadequate; (2) more care should be taken of nursing mothers; (3) there should be some form of notification of every case of acute rachitis; (4) a thorough, widespread investigation should be carried out if other centres report similar findings.

My period of investigation has been from March to September for the years 1941-2. It has in most cases been impossible to ascertain when symptoms first began, so sunlight estimations have not been practical, but in the gross majority the parents have assured me their children get plenty of fresh air.

With regard to notification, I feel it is only in this way that rickets can be placed in its rightful category of seriousness. Certainly notification should make possible investigation by the local health service. Rickets, with its distressing sequelae, is a preventable disease, and in my opinion every case is a responsibility, if not a disgrace, on our medical organization. —I am, etc.,

Manfield Hospital, Northampton. Noël Smith.

Tenosynovitis in Untrained Farm-workers

Sir,—It is with great interest that I read the report of Colonel Flowerdew and Dr. Bode on this condition (Sept. 26, p. 367). At this time of the year, here in Kent, we all go to the hop-gardens, joining those who come to spend their holidays hop-picking. For the uninitiated, hops are about the size of a rose-bud and the texture of tissue paper, and a good picker might gather 30 to 35 bushels a day. Every year, a few days after picking has started one sees at least half a dozen cases of tenosynovitis, always affecting the extensor tendons, usually the extensor ossis metacarpi pollicis and the extensor digitorum communis. For these patients hop-picking is finished for that year. Treatment has always consisted of strapping with elastoplast and complete rest for a week and restrapping for a further week. Recovery is the rule at the end of this time, and these workers are able to pick the following year, usually without recurrence.

I believe that it is the repetition of exactly the same movement many hundreds of times a day that induces the inflammation, for it is often the experienced picker, "out to do a little better this year," who is affected, and not the novice picking but a few bushels a day.—I am, etc.,

Tenterden. Thos. H. E. Taylor-Jones.

The Demand on the Blood Donor

Sir,—Your leading article on the demand on the blood donor (Sept. 19, p. 342) interested me. When, ten days ago, a donor previously bled 5 months before presented herself to me for bleeding and on investigation I found her to have only 60% haemoglobin (Sahli), instead of bleeding her I gave a prescription for iron on a hospital form; I told her to continue with iron therapy for 6 or 8 weeks, assuming that she would quite cheaply obtain the iron in the form prescribed from a local chemist, there being no out-patient facilities within 10 miles of her home. She, however, went to her family doctor, who upbraided me on the telephone for not referring her in the first place directly to him. I thought he had reason for complaint on ethical grounds, though from the donor's point of view—i.e., convenience and expense—and from the point of view of preventive medicine in general, I considered that I may have done rightly.

I then ascertained the official view of my own transfusion service, and it was that enrolled donors should be at liberty to accept free advice and if necessary prescription of iron from the transfusion officer attached to the service in which the donor is enrolled—this has been its custom from inception 18 years ago. In the leading article there appear the following passages: (1) "Transfusion officers are beginning to realize the need for checking the haemoglobin level before bleeding and for prescribing iron for the prevention and treatment of anaemia in blood donors." (2) "It seems unwise to bleed a donor whose haemoglobin is below 11.7 g. per 100 c.cm., or 85% on the Haldane scale. Such volunteers should be advised to take iron and be seen again after an interval. For administrative reasons, it may be simpler to prescribe iron for all donors after bleeding."

There is no doubt in my mind which of these methods is likely to be most effective in preventing anaemia, especially as moderately anaemic subjects are virtually symptomless very often, and are, therefore, unlikely to seek professional advice in more than a percentage of cases, even when this course is suggested to them.—I am, etc.,

Sutton Coldfield. Guy R. Bashford.

SIR,—With reference to your leading article (Sept. 19, p. 342), I think the following case will be of interest.

A patient, a woman of 26, has been acting as a blood donor for the last 3 years. She has been called upon every 3 months up to April, 1942, during that period. The last time she was called upon, in July, 1942, she did not attend. She was sent to me by her private doctor in August, 1942. There was evidence of chronic disease in the left lung and the sputum test was positive. She gave a history of having had a cough for the last 3 years. There was no history of tuberculosis in the family, and considering the factors that lead to the manifestation of tuberculosis importance can be attached to the fact that she has been a regular blood donor. Further study, however, of her dietetic habits revealed the fact that she was the type of individual who disliked meat and fat, cabbage, and green salads. The lack of these elements in her diet would cause a state of malnutrition, and this condition would be intensified by the regular withdrawals of blood.

The advice given in the article, that volunteers should take iron, is good, but it also seems necessary that inquiry should be made into the habitual diet of these volunteers, and that they should be investigated by miniature radiography.—I am, etc.,

Plaistow, E.13 P. A. GALPIN, Tuberculosis Officer.

"Silent" Sinusitis

SIR,—I wish to confirm Mr. Terence Cawthorne's statement (Sept. 26, p. 379) that sinus disease as a cause of visual disturbance is very rare. It has been and is my privilege to see a number of cases of retrobulbar neuritis and loss of sight referred to my clinic by one of our largest ophthalmic hospitals. In 1923 I studied my notes of 54 cases of retrobulbar neuritis; after a careful and thorough examination of the nasal sinuses, in only 5 of the 54 cases was the retrobulbar neuritis due to nasal disease (*British Medical Journal*, Nov. 10, 1923). Many of these 54 cases were followed up, and at a meeting of the Sections of Ophthalmology and of Laryngology in 1926 (*Proc. roy. Soc. Med.*, 1926, vol. 19, Sect. Ophthalmol., p. 90) I gave details of the review of 76 cases of optic neuritis, and in only 5 of these was the neuritis caused by nasal disease. In all these 5 cases the sinusitis was manifest and obvious.

Modern methods of examination and improved *x*-ray photography have abolished latent, hidden, or silent sinusitis, and to the honest rhinologist "silent sinusitis" does not exist.

My experience since the above publications in 1926 has shown that the number of cases of loss of sight of nasal origin are considerably fewer than the above figures indicate.—I am, etc.,

London, W.1. EDWARD D. D. DAVIS.

SIR,—It is only right to be sceptical about a condition which is difficult to diagnose except by a specialized *x*-ray technique not always available. I felt sceptical myself when first introduced nearly 3 years ago to the Proetz technique of ephedrine replacements as a means of curing asthmatics, epileptics, and "migraines." The proof of the pudding, however, is in the eating.

A boy of 14 was seen in May, 1940. He had had asthma since an attack of measles in 1936. He was deaf and "bunged up" with catarrh. He had 12 replacements over about 3 weeks. His catarrh and deafness cleared up completely, and he has had no asthma since.

A youth aged 19 suffered from petit mal, having had an attack about once a fortnight since childhood. He had a stuffy, blocked-up nose. He had 10 replacements in June, 1940, and has not had a single fit since.

These two cases are selected from a large number, all of which have shown remarkable improvement by relieving this allergic condition of the sinus linings.—I am, etc.,

Ashtead, Surrey. W. EDWARDS.

SIR,—Mr. Terence Cawthorne (Sept. 26, p. 379) writes of the custom to regard the sinuses as healthy in the absence of radiological or clinical evidence. In the face of the evidence given in the two cases I reported in the *Journal* of Aug. 1 (p. 128), is it not time that we changed our custom?—I am, etc.,

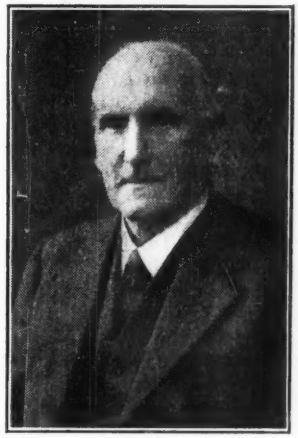
London, W.1. ROSA FORD.

Obituary

A. B. MITCHELL, O.B.E., F.R.C.S.I., M.P.

The recent death of Arthur Brownlow Mitchell (familiarly known to all old Queensmen as "A. B.") has severed a link which securely bound successive generations of medical graduates to Belfast for half a century.

Entering the old Queen's College as a medical student in 1885, he graduated in the Royal University of Ireland in 1890. By winning the Coulter Exhibition he had already proved himself the first man of his year and had given an indication of that ability, industry, and practical knowledge of medicine and surgery which in later years placed him in the forefront of the surgeons of his time. After graduation he held the post of house-surgeon to the Royal Hospital at a time when there were but two resident medical officers. At once he showed his dexterity and quickness in the performance of minor operations and in the treatment of fractures, and by conducting a surgical "grind" for final-year students gave promise of the capable and attractive teacher which remained one of his chief characteristics throughout his surgical career. In 1893 the Ulster Hospital for Children and Women gave him his first staff appointment, and this was followed next year by his election as assistant surgeon to the Royal. In both these institutions he had for a colleague William Whitla, for many years his chief medical friend. At this time both hospitals had become antiquated and ill fitted for the great advances which were to be made within the next few years. In the rebuilding of each Mitchell took a prominent part and showed that he possessed other qualifications for leadership besides those of a professional nature.



The time was opportune for the young surgeon. A new era had just been opened by the discoveries of Lister. These inaugurated the study of pathology in the living subject. The abdomen lent itself to this experimental stage both by reason of the extent of the field and by the relative ease with which abdominal explorations could be carried out. Mitchell was immediately attracted by its problems. His enthusiasm, manual dexterity, gentleness, and quickness gave him initial successes in gastric and duodenal perforations. Operations for acute appendicitis followed and afforded facilities for studying the varied pathology to which this organ gives rise. In a brief period Mitchell obtained a wide experience of abdominal diseases generally, and by papers on abdominal subjects to the various societies played a great part in the medical education of the Province. These papers established the position of the rising young surgeon throughout the whole country, notably enhancing the reputation of the Belfast Medical School. At the Belfast Meeting of the B.M.A. in 1909 he read a paper on 23 consecutive operations for perforations of the duodenum, with two deaths—a record performance at the time. The treatment of the "acute abdomen" by surgical methods was soon followed by the operative treatment of less urgent conditions. As pathological knowledge increased attempts were made to anticipate perforations of the stomach, duodenum, and appendix. This opened up a wide field both in diagnosis and treatment when *x*-ray diagnosis was still in its infancy. Gastro-enterostomy for pyloric obstruction is an obvious example of this, and few operators in the country equalled him in the performance of this operation. While the upper abdomen absorbed much of Mitchell's attention his technical skill gave him experience in all abdominal diseases, so that before 1909 he had contributed important papers on intussusception, intestinal obstruction, and cancer of the rectum.

Mitchell's outstanding position in the surgery of the abdomen in the early years of the century brought with it a rapid increase in his work as a consultant. His advice was sought not only by the general practitioners all over the country but by the surgeons to the county and district hospitals, most of whom were brought up on pre-Listerian principles and were eager for him to demonstrate his methods in the country. The advent of the motor car made this possible, and during the ten years before the last war Mitchell's country work was enormous. The outbreak of war showed, however, that he was a general surgeon of wide capabilities. He was nominated by the Royal College of Surgeons in Ireland for the post of consulting surgeon to the Forces in France. When the invitation arrived, however, he was in a nursing home, having himself undergone an abdominal operation. He had therefore most unwillingly to decline the offer. Later on, in 1916, Sir Robert Jones put him in charge of the Military Orthopaedic Hospital in Belfast. In this post he proved himself a first-rate administrator as well as an expert on the problems presented by the wounded soldiers who were arriving in great and increasing numbers. At this time his daily list included nerve sutures, bone grafting, and amputations. During the war the hospital dealt with over 3,000 cases, and this work gained for him the O.B.E.

But Mitchell's interests were not confined to his professional work. When Queen's College became Queen's University in 1908 he was appointed to the Senate. From the first he was a member of the Standing and Finance Committees, which determine the policy and carry out much of the administrative work of the university. For several years he was chairman of the Athletic Field Committee, and the spacious and attractive grounds at Cherryvale are a permanent memorial to his foresight and knowledge of the value of physical health to the student. In 1935 he became M.P. for the university in the Northern Ireland Parliament. He greatly appreciated the confidence of his medical friends which this honour conveyed, for he had never had time in his very busy professional life for political activities. In Parliament he often spoke on public health problems, especially when these entailed the improvement and extension of medical services. Whatever Mitchell's activities may have been, and they were widespread, he allowed nothing to interfere with his work for the Royal Victoria Hospital. At his retirement from the active staff he joined the board of management, and for twelve years up to the end held the office of chairman. Under his direction recent extensions were made to the wards, and the new fracture department now in process of building had his constant support.

Mitchell's greatest asset was the charm of his personality. His rapid success in his early surgical career did not fail to cause some jealousy. Most of this, however, was ill founded, and he lived to gain the undivided esteem and affection of his colleagues on the staff of the hospital and its board of management. He had many friends, too, among the leading surgeons of his time. Two of his most cherished possessions were letters of appreciation from Lord Moynihan and Sir Robert Jones.

Dr. Edwin Lancelot Hopkins died suddenly on Sept. 10 at the age of 53. He had been medical superintendent of the Derbyshire County Mental Hospital since June, 1931. E. L. Hopkins was a Somerset man, lived for some time in Southern Ireland, and studied medicine at the London Hospital, qualifying M.R.C.S., L.R.C.P. in 1916, after which he at once joined the R.A.M.C. and saw service first with the 39th Field Ambulance, and later with the 6th Battalion South Lancashire Regiment in Mesopotamia, being awarded the M.C. for conspicuous gallantry and devotion to duty while attending the wounded under fire. Upon the termination of his military service he secured an appointment in the Ministry of Pensions and took the D.P.H. in 1921, after which he joined the L.C.C. Mental Hospitals Service, and was A.M.O. at Bexley and Hanwell Hospitals, and deputy medical superintendent at the Ewell and West Park Hospitals at the time of his appointment to the Derbyshire County Mental Hospital at Mickleover. He was a man of charming personality, and displayed a kindly sympathy which endeared him to his patients and to those with whom he came in contact in his various outside activities. During his term of office at Mickleover he added much to the amenities of the patients, improving their living conditions and methods of treatment, and creating a fuller sense of security and freedom in the outlook of the mental sufferer. He inaugurated psychiatric clinics at Derby and Chesterfield and helped many neurotic subjects by his calm, kind, and tolerant attitude. He avoided hasty decisions and proved himself a man of sound judgment.

On Sept. 16 there passed away Judge Digby Cotes-Preedy, one of the few medical men who have forsaken medicine and thereafter attained distinction at the Bar. The outstanding instance in our time is the late Lord Finlay. He was born in 1875, and after taking his degree at Cambridge, from Emmanuel College, he studied at St. George's Hospital; but he always had one eye on the law, and this delayed his qualifying as L.S.A., about which he appeared to be in no great hurry. He held a house appointment at his own hospital, however, and was "called" not long after. Always a man characterized more by knowledge of the world than by aptitude for academic distinction, he applied himself to his second profession with great energy. He became law reporter for the daily press (actually, for the *Daily Mail*, if memory serves) and attended the Courts most assiduously. This, together with his natural shrewdness and native wit, with which he was well endowed, presently led him to adopt the Divorce Division as his province, and there he soon obtained a very considerable practice as a junior. In 1925 he took silk, and continued to enjoy even greater success, becoming a Bencher of the Inner Temple in 1932. He was promoted to a County Court Judgeship in 1936, but had to resign owing to ill-health in 1941. He had been a member of the Coroners Committee in 1935 and served on two select committees during the war of 1914-18. He was also Chancellor of the Diocese of Worcester. Cotes-Preedy was an interesting and amusing raconteur; and the County Court Bench was exactly his right *milieu*. He married in 1908 Margaret, younger daughter of the late Mr. S. Bradley of Blakedown, and had one son. His father was the late Rev. D. H. Cotes-Preedy, minor canon of Worcester Cathedral.

The Services

The M.C. has been awarded to Capts. A. A. Byrne, C. R. Tilly, E. Townsend, and J. Watt, R.A.M.C., and to Capt. R. B. Sule, I.M.S., for gallant and distinguished services in the Middle East.

Capts. J. H. Annan, A. C. D. Parsons, and I. McD. G. Stewart, R.A.M.C., have been mentioned in dispatches in recognition of gallant and distinguished services in the Middle East.

CASUALTIES IN THE MEDICAL SERVICES

Temp. Major John MacMillan, R.A.M.C., died on active service in July. He was born on May 18, 1912, and was educated at Aberdeen Grammar School and at the University of Aberdeen, where he graduated M.B., Ch.B. in 1936. He held house posts at Walsall and Kettering hospitals and was in general practice for eighteen months before being appointed A.R.P. assistant medical officer for Southgate. He entered the R.A.M.C.(T.A.) in Aug., 1937, was promoted capt. a year later, and was called up immediately war broke out. He was posted to the Middle East early in 1940 and served in Palestine, Iraq, and Syria. In April, 1941, he was mentioned in dispatches for distinguished services. He leaves a widow. He was a member of the B.M.A.

Temp. Major Thomas Gerald Martin, R.A.M.C., is included as "died" in an Army Council Casualty List published on Sept. 25. He was born on Aug. 24, 1906, and graduated M.B., B.Ch., B.A.O. (with honours) at the National University of Ireland, and gained the Blayney prize and the Pearson gold medal in 1931. He also took the D.P.H.Lond. He had held house posts at Sheffield Royal Hospital, and in 1937 settled in practice in London. He entered the R.A.M.C. in Nov., 1939, and was promoted capt. a year later.

An India Office Casualty List announces the death of Lieut.-Col. Bishambhar Sahai, I.M.S. He was born on Oct. 17, 1888, and was educated at the University of Calcutta and at Charing Cross Hospital, qualifying M.R.C.S., L.R.C.P. in 1916. He immediately took a temp. commission in the I.M.S., and in 1920 received a permanent commission, being ranked as capt. from 1919. He became lieut.-col. in 1931. He served in France and Flanders during the war of 1914-18, receiving the medals.

Prisoners of War.—Major J. A. G. Carmichael, R.A.M.C., War Subs. Capt. H. D. Fleming, R.A.M.C., War Subs. Capt. C. D. Holdstock, R.A.M.C., Capt. W. O. James, R.A.M.C., War Subs. Capt. J. C. Mustardé, R.A.M.C., Capt. P. Turner, R.A.M.C.

Missing.—Capt. C. V. Lewis, R.A.M.C.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the seasonal rise in the incidence of infectious diseases which is expected in early autumn appears to have begun. A rise, in some cases substantial, occurred in the number of notifications of every disease excepting typhoid fever, which fell by 17 cases.

There was a small rise, 23 cases, in the incidence of diphtheria, the notifications of which are now 36% larger than four weeks ago. No marked contrasts exist between the area totals of last week and this week.

The notifications of scarlet fever have also shown a continuous rise during the past four weeks and are 264 more than last week. The rise was fairly general throughout the country, the record increase being 75 in Yorks West Riding.

The notifications of whooping-cough were 76 more than last week. The trend of the incidence within the counties fluctuates from week to week, the largest variations during the week reviewed being a rise of 26 in Yorks West Riding and a fall of 23 in Middlesex.

The incidence of measles, which had been continuously declining for eleven weeks, during which the weekly totals fell from 7,581 to 2,644, rose by 354 cases. The additional cases came from the North Country. The increases were Yorks West Riding 116, Lancashire 60, Cheshire 58, Cumberland 49, Northumberland 42. In the southern part of the country the incidence continued to decline, except in London and Middlesex, where 38 and 30 cases more than last week were recorded.

Although the notifications of dysentery rose by 38 there was no new outbreak of any size. Small numbers of cases occurred more frequently than usual and ten more counties reported cases than during the preceding week. The outbreak in Oxfordshire fell from 41 to 14 (Oxford C.B. 5, Bullingdon R.D. 9), while in Norfolk there was a rise from 16 to 36 (Norwich C.B. 13, Swaffham R.D. 18, St. Faiths and Aylesham R.D. 5). The largest of the other county totals were Lancashire 20, London 16, Surrey 10.

In *Scotland* there was little change during the week. The only noteworthy variation was an increase of 33 cases in the notifications of scarlet fever. The chief centres of infection of this disease were Glasgow 76, and Edinburgh 68.

In *Eire* there was a relatively large increase, from 15 to 31 cases, in the incidence of poliomyelitis. The cases were widely distributed and involved fifteen districts. The largest centre of infection was in the county of Louth (Drogheda U.D. 5 and Louth R.D. 5); 5 cases were also reported in Dublin.

Quarterly Return for Eire

The report of the Registrar-General for the second quarter of 1942 shows that the general position was better than in the corresponding quarter of 1941.

The birth rate was 24.5 per 1,000, being 4.5 above the rate for the June quarter of 1941 and the largest recorded in any quarter during recent years. The infant mortality was 62 per 1,000 registered births. This rate was 9 below that of the second quarter of 1941 and 5 below the average of the June quarter of 1937-41.

The general death rate was 14.6 per 1,000. Although this was 0.5 below the rate for the corresponding quarter of 1941, it was slightly higher, 0.2, than the average for 1937-41. Deaths from puerperal causes were 2.2 per 1,000 births, an increase of 0.2 on the value for the second quarter of 1941 but considerably lower than the rates for the corresponding quarters of 1937-40, when the rate varied from 2.3 to 4.3. The death rate from tuberculosis was 1.7 per 1,000 compared with 1.3 in the previous year, and was the largest rate recorded in a June quarter during recent years. The increase was mainly due to pulmonary tuberculosis with 1,011 deaths compared with 738 in the second quarter of 1941.

Returns for the Week Ending September 26

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,963, whooping-cough 938, diphtheria 807, measles 3,356, acute pneumonia 459, cerebrospinal fever 70, acute poliomyelitis 32, dysentery 237, paratyphoid 13, typhoid 9.

Helen Wyandt and her colleagues (*Arch. intern. Med.*, 1941, **68**, 1043) report 86 new cases of elliptic erythrocytes in three large families of German extraction. In this series elliptic red cells were found in one member of each of two pairs of twins, in the other member of which the cells were round. In one family both the mother and the father had large numbers of elliptic red cells. The authors state that their investigation lends support to the opinion that the anomaly has no definite relation to disease.

No. 37

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 19.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1942					1941 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	72	4	19	3	3	118	6	23	3	11
Deaths		—	2				1	—		
Diphtheria	878	35	206	65	22	917	30	254	13	30
Deaths	16	1	2	4	—	22	—	5	1	1
Dysentery	184	16	58		—	94	9	67		—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	1	—	—		—	1	—	—		—
Deaths		—	—				—	—		
Enteric (typhoid and paratyphoid) fever						49	4	7	8	3
Deaths						1	1	—	—	1
Erysipelas		—	49	12	—		—	48	4	2
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				116						
Deaths	69	10	17	27	9	25	3	16	16	8
Measles	2,998	259	127	13	17	808	25	38	35	1
Deaths	4	—	3	—	—	2	—	—	1	—
Ophthalmia neonatorum	93	3	29	1	—	83	9	20	2	—
Deaths										
Paratyphoid fever	8	—	1	—		141	8	15	1	
Deaths	—	—	—	—	—	1	—	—	—	
Pneumonia, influenzal*	401	18	4		2	466	16	3		5
Deaths (from influenza)	10	2	1	—	1	8	8	—	—	3
Pneumonia, primary			127	9				132	11	
Deaths				8	7				9	—
Polio-encephalitis, acute	1	—				4	—			
Deaths										
Poliomyelitis, acute	29	1	1	31	1	36	4	2	1	1
Deaths								—		
Puerperal fever	—	—	19	—	1	1	1	19	4	—
Deaths		—					—			
Puerperal pyrexia	136	7	9		6	150	13	11		3
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,882	115	351	70	34	1,005	39	185	51	23
Deaths	—	—	—	—	—	3	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	13	2	3	9	6					
Deaths	—	—	—	—	—					
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,150	105	55	49	29	2,710	246	153	35	16
Deaths	9	—	—	2	—	15	3	6	3	—
Deaths (0–1 year) Infant mortality rate (per 1,000 live births)	332	36	56	48	23	256	15	55	52	20
Deaths (excluding still-births)	3,422	461	503	188	111	3,436	419	535	173	113
Annual death rate (per 1,000 persons living)			11·3	12·6	†			11·6	11·5	†
Live births	5,861	675	833	443	253	4,910	423	828	452	235
Annual rate per 1,000 persons living			17·2	29·6	†			16·8	30·0	†
Stillbirths	206	21	28			185	16	35		
Rate per 1,000 total births (including stillborn)			33					41		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

At a meeting of the Royal Sanitary Institute to be held at 90, Buckingham Palace Road, S.W., on Wednesday, Oct. 21, at 2.30 p.m., a discussion on "Scabies" will be opened by Dr. Henry MacCormac, Dr. Thomas Standring, and Major C. G. Johnson, R.A.M.C.

A meeting of the Therapy Section of the Faculty of Radiologists will be held at 32, Welbeck Street, W., on Saturday, Oct. 17, at 10.30 a.m., when there will be a discussion on beam direction in radiotherapy.

A Christie pension of £89 per annum will in November be awarded to a necessitous medical man fully 55 years of age, who has been registered for 5 years, and who is in need of help. Forms of application may be had from the Secretary's Office, Epsom College, Surrey, and must be completed and returned by Oct. 26.

The address of the Drugs Branch, Home Office, is now Cornwall House, Stamford Street, London, S.E.1. Telephone number Waterloo 8070.

After a trial lasting eight days at the Central Criminal Court Dr. Francis Percival de Caux of Green Street, W., and with a country house at Marden, Kent, was found guilty on eight of nine counts charging him with performing illegal operations to procure the miscarriage of women. The jury were at first unable to agree upon a verdict, but after a second retirement they recorded their verdict and also found Dr. de Caux guilty of conspiring with another woman to attempt to procure her miscarriage. Supt. Smeed of the Kent County Police said that 75 women had been seen by the police in the course of their inquiries, and 35 admitted they had undergone an operation; 47 women had been treated and the fees paid amounted to £2,698. Mr. Justice Hallett, passing sentence of five years' penal servitude, and two years' imprisonment on the second charge, the two sentences to run concurrently, said, "You must have known all through the penalties that would follow such a practice, and you did your best to cover up your activities."

The Medical Research Council has received a bequest of the residuary estate of the late Mrs. Emily Inston of Sandbach, Cheshire, to be applied to the furtherance of research work on arthritis.

Dr. H. D. Clementi-Smith and Dr. M. H. Watney have been elected wardens of the Mercers' Company.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Post-mortem Lividity

Dr. W. W. MACKINLAY writes: In my textbook (Glaister) the time of earliest appearance of post-mortem lividity is stated to be 8 to 14 hours and in exceptional cases 5 hours. Recently this phenomenon was observed when I examined a body at 1 p.m. where death undoubtedly took place after 10 a.m., the time elapsing being thus certainly less than 3 hours. I should be glad to have the comments of those of extensive medico-legal experience. I may say that the case was a cardiac one—probably aortic. This, of course, may have had considerable influence on time of appearance.

Itching of Limbs

Dr. F. M. PURCELL writes in reply to Dr. W. A. Milligan (Aug. 5, p. 208): During recent months I have been treating a bed-ridden man, aged 72, suffering from chronic heart disease and paresis of the limbs. He has been under medical treatment for many years, and during the last year or so has suffered from severe generalized pruritus. Already he had tried various antipruritics without relief; I fared no better than my predecessors until July, when, in curiosity, I prescribed 1,000 B units of oestrone twice daily by mouth. Prompt relief followed, and has been maintained on two three-weeks courses. The itching had been persistent and intractable, the skin scratched and pigmented; the poor old wife was in great distress as the husband's sleep was so upset. He has not complained of the itching again since July. Last month I prescribed 1,000 B units for another elderly man, who was also complaining of chronic generalized itching. Each week he has admitted improvement under this treatment, not complete relief, but considerable: he is not an enthusiastic patient. Neither of these patients was diabetic.

LETTERS, NOTES, ETC.

Fly Pest

Dr. J. B. WRATHALL ROWE (Harrow) writes: I have noticed a considerable increase in the numbers of the common house and other flies during the past summer compared with previous years, and attribute this to the greater use of garbage bins which are now dotted about the streets for the reception of pig food. While realizing the necessity for collecting pig food in this way, I feel that attention should be drawn to the need for destroying as many flies as possible next spring and summer if we are not to be faced with outbreaks of fly-borne diseases such as summer diarrhoea. Steps should be taken now to begin the manufacture of fly-traps and other means of killing them. The ordinary fly "swatter" is practically unobtainable and in any case is an inefficient and messy instrument. I have been experimenting lately with a de Vilbiss atomizer, and find that if ordinary commercial paraffin is used in it and the spray directed on to the fly the latter rolls over and dies with astonishing rapidity. The corpses can then be collected and burnt. I believe the cause of death is asphyxia resulting from blockage of the air ducts by the paraffin. Incidentally, ordinary paraffin is very much cheaper than the proprietary insecticides on the market—about 4d. a quart compared with 2s. 6d. a pint—and is just as efficacious. It does not stain and evaporates in time from walls and ceilings. It should not, of course, be used in proximity to food or open flames.

Bureaucracy in Rubber Gloves

Mr. A. J. BLAXLAND (Norwich) writes: On July 22 I applied to the Regional Office of the Ministry of Health for a supplementary ration of rubber operating gloves. I stated that my practice was entirely a surgical one and gave an estimate of my average yearly consumption. After an interval of six weeks I received a letter asking what my basic ration had been. I replied, by return of post, that it had been the usual three pairs of gloves, and I requested that I might be allowed a supplementary ration as soon as possible, as my reserve stock was nearly exhausted. I received a certificate for extra gloves this morning—i.e., nearly ten weeks after my application. I grant that this may be considered a somewhat trivial affair, but it seems to me to be typical of the dilatory methods that one may expect of the bureaucratic control in a Government Department. It would not be tolerated in any ordinary business concern; and it is one illustrative portent to our profession of what to expect in a State Medical Service.

Bleeding Tooth Sockets

Dr. S. JUNG (Heworth, York) writes with reference to Dr. J. T. Maclachlan's note (Sept. 19, p. 356): May I draw attention to a simple method to stop bleeding tooth sockets. Once when I failed to stop the persistent welling-up of blood into the mouth by use of silver nitrate, and attempts to plug the socket of the bleeding tooth with small strips of gauze also proved unsuccessful, I inserted a cork of a small bottle into the socket. I had sterilized the cork by boiling it in water for ten minutes, and I removed it after 24 hours. Since then I have used this method 3 or 4 times, always with success.

"The Pleuro-subpleural Zone"

Dr. J. SKLADAL writes from 26, Trinity Street, Cambridge: I was rather surprised by the review of my monograph in the *British Medical Journal* of Sept. 5, made under the heading "An Auscultatory Method." Regretting very much indeed that the reviewer did not attend the meetings of the Royal Society of Medicine and of the Physiological Society in November last year, at which both occasions I demonstrated the method of sudden expiration and one patient with cortico-pleural lesions, as also the mechanism of the reduplicate sound on the physical model, I would stress my readiness and, as I think, my duty, too, to endeavour to convince everyone who doubts about the findings and conclusions given in my monograph.